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DIRECTORY.

[The rooms in the Quadrangle are numbered consecutively beginning at the left of the main entrance, ten numbers being allotted to each building. Numbers 120 to 160 are in the Engineering buildings, south of the Quadrangle. The Psychological Laboratory is in the brick building near Escondite Cottage, east of Encina Hall. The Studios are in the frame building southwest of the Quadrangle.]

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Aug. 29 Monday.....Entrance Examinations begin.
Aug. 30 Tuesday
Aug. 31 Wednesday } Registration of Matriculated Students.
Sept. 1 Thursday.....Registration of New Students.
Sept. 2 Friday .....Instruction begins.
Sept. 9 Friday .....Conferring of Degrees.
Nov. 24 Thursday
Nov. 27 Sunday } ..Thanksgiving Recess.
Dec. 21 Wednesday...First Semester ends.

1899

Jan. 7 Saturday.....Entrance Examinations begin.
Jan. 9 Monday
Jan. 10 Tuesday } ...Registration for Second Semester.
Jan. 11 Wednesday...Instruction begins.
Jan. 16 Monday.....Mid-Year Conferring of Degrees.
Feb. 22 Wednesday ..Washington's Birthday.
Mar. 9 Thursday.....Founder's Day.
Mar. 25 Saturday
April 2 Sunday } ...Mid-Semester Recess.
May 14 Sunday .....Memorial Day.
May 19 Friday .....Instruction ends.
May 20 Saturday
May 22 Monday } ..Entrance Examinations at University.
May 23 Tuesday
May 21 Sunday .....Baccalaureate Sermon.
May 22 Monday.....Class Day.
May 23 Tuesday.....Alumni Day.
May 24 Wednesday...Commencement.

Sept. 4 Monday.....Entrance Examinations begin.
Sept. 5 Tuesday
Sept. 6 Wednesday } Registration of Matriculated Students.
Sept. 7 Thursday ....Registration of New Students.
Sept. 8 Friday .....Instruction begins.
Sept. 15 Friday .....Conferring of Degrees.
Nov. 30 Thursday
Dec. 3 Sunday } ..Thanksgiving Recess.
Dec. 21 Thursday ....First Semester ends.

1900

Jan. 6 Saturday.....Entrance Examinations begin.
Jan. 8 Monday
Jan. 9 Tuesday } ...Registration for Second Semester.

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[*Arranged in groups in the order of seniority of appointment.*]

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M. S., Cornell University, 1872; M. D., Indiana Medical College, 1875; Ph. D., Butler University, 1878; LL. D., Cornell University, 1886. Instructor in Botany, Cornell University, 1871–72; Professor of Natural History, Lombard University, 1872–73; Principal of Appleton (Wis.) Collegiate Institute, 1873–74; Student and afterward Lecturer in Marine Botany, Anderson School at Penikese, 1874; Teacher of Natural History, Indianapolis High School, 1874–75; Professor of Biology, Butler University, 1875–79; Assistant to the U. S. Fish Commission, 1877-91; Professor of Zoology, Indiana University, 1879-85; President of Indiana University, 1885–91; President of the California Academy of Sciences, 1896–98; U. S. Commissioner in charge of Fur Seal Investigations, 1896–98.

JOHN CASPER BRANNER, Vice-President, and Professor of Geology. *28 Alvarado Row.*

B. S., Cornell University, 1882; Ph. D., Indiana University, 1885. Assistant Geologist, Imperial Geological Survey of Brazil, 1875–78; Special Botanist for Thomas A. Edison in South America, 1880–81; Special Agent of the U. S. Department of Agriculture for Investigating Cotton and the Insects affecting it in Brazil, 1882–83; Topographical Geologist of the Geological Survey of Pennsylvania, Anthracite District, 1883–85; Professor of Geology, University of Indiana, 1885–91; State Geologist of Arkansas, 1887–92.

GEORGE ELLIOTT HOWARD, Professor of History.
20 Alvarado Row.

A. B., University of Nebraska, 1876; A. M., 1879; Ph. D., 1894. Student in History and Jurisprudence, Universities of Munich and Paris, 1876–78; Professor of History, University of Nebraska, 1879-91; Secretary of the Nebraska State Historical Society, 1885–91.

OLIVER PEEBLES JENKINS, Professor of Physiology and Histology. *Cedro Cottage.*

A. B., Moore's Hill College, 1869; A. M., 1872; M. S., Indiana University, 1886; Ph. D., 1889. Professor of Natural Science, Moore's Hill College, 1876–82; Professor of Natural Science, Indiana State Normal School, 1883–86; Professor of Biology, De Pauw University, 1886–91.

*JOHN HENRY COMSTOCK, Professor of Entomology.
[*Ithaca, N. Y.*]

B. S., Cornell University, 1874. Instructor in Entomology, Cornell University, 1873–77, Assistant Professor, 1877–82; U. S. Entomologist at Washington, 1879–81; Professor of Entomology and General Invertebrate Zoology, Cornell University, since 1882.

*Absent during 1898-99.

MELVILLE BEST ANDERSON, Professor of English Literature.
Menlo Park.

A. M., Butler University, 1877. Professor of Modern Languages, Butler University, 1877–80; Professor of English Literature, Knox College, 1881–86; Professor of Literature and History, Purdue University, 1886–87; Professor of the English Language and Literature, University of Iowa, 1887–91.

*JOHN MAXSON STILLMAN, Professor of Chemistry.
[*In Europe.*]

Ph. B., University of California, 1874; Ph. D., 1885. Assistant in Chemistry, University of California, 1873–75; Student in Chemistry, Strassburg and Würzburg, 1875–76; Instructor in Organic and General Chemistry, University of California, 1876–82; Chemist of the Boston and American Sugar Refining Company, 1882–92.

FERNANDO SANFORD, Professor of Physics.
Palo Alto.

B. S., Carthage College, 1879; M. S., 1882. Student, University of Berlin, 1886–88; Professor of Physical Science, Mt. Morris College, 1879–82; Superintendent of Schools, Ogle County, Ill., 1882–86; Instructor in Physics and Chemistry, Englewood High School, 1888–90; Professor of Physical Science, Lake Forest University, 1890–91.

CHARLES DAVID MARX, Professor of Civil Engineering.
Palo Alto.

B. C. E., Cornell University, 1878; C. E., Karlsruhe Polytechnicum, 1881. Instructor in Civil Engineering, Karlsruhe Polytechnicum, 1880–81; U. S. Assistant Engineer, Missouri River Improvement, 1882–84; Assistant Professor of Civil Engineering, Cornell University, 1884–90; Professor of Civil Engineering, University of Wisconsin, 1890–91.

ERNEST MONDELL PEASE, Professor of the Latin Language and Literature. *6 Alvarado Row.*

A. B., University of Colorado, 1882; A. M., 1885. Fellow in Johns Hopkins University, 1884–86; Student at Bonn, 1885–91; Instructor in Latin, Smith College, 1886; Professor of Latin, Bowdoin College, 1886–91.

CHARLES HENRY GILBERT, Professor of Zoology.
Palo Alto.

B. S., Butler University, 1879; M. S., Indiana University, 1882; Ph. D., 1883. Assistant in Natural Sciences and Modern Languages, Indiana University, 1880–84; Professor of Natural History, University of Cincinnati, 1884–88; Professor of Zoology, Indiana University, 1888–91; Assistant to the U. S. Fish Commission, 1880–91.

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27 Salvatierra St.

Ph. M., University of Michigan, 1882; Ph. D., 1886. Teacher of Biology, Detroit High School, 1882–86; Student at Bonn, Tübingen, and Berlin, 1886–88; Professor of Botany, Indiana University, 1888–91.

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A. B., Oberlin College, 1888; A. M., 1891; M. D., College of Physicians and Surgeons, New York City, 1891. Director, Oberlin College Gymnasium, 1886–88.

*Absent on leave, 1898–99.

*ALBERT WILLIAM SMITH, Professor of Mechanical Engineering. [*Scranton, Pa.*]

B. M. E., Cornell University, 1878; M. M. E., 1886. Machinist and Contractor with Brown & Sharp Mfg. Co., Providence, R. I., 1879-80; Machinist and Shop Foreman, Straight Line Engine Works, Syracuse, N. Y., 1880-83; Superintendent, Kingsford Foundry and Machine Works, Oswego, N. Y., 1883-86; Fellow in Mechanical Engineering, Cornell University, 1886-87, Assistant Professor, 1887-91; Professor of Machine Design, University of Wisconsin, 1891-92.

EWALD FLÜGEL, Professor of English Philology.

Palo Alto.

Ph. D., University of Leipzig, 1886. Student, Universities of Freiburg and Leipzig, 1882-88; Privat Docent, University of Leipzig, 1888-92.

CHARLES BENJAMIN WING, Professor of Structural Engineering. *Palo Alto.*

C. E., Cornell University, 1886. Fellow in Civil Engineering, Cornell University, 1886-87, Instructor, 1887-90, Assistant Professor, 1890-91; Engineer, Pompton (N. J.) Powder Co., 1887, Phœnix Powder Co., Farmingdale, N. J., 1888; Assistant Engineer, Berlin (Conn.) Iron Bridge Co., 1889-90; Professor of Bridge and Hydraulic Engineering, University of Wisconsin, 1891-92.

FRANK ANGELL, Professor of Psychology.

Palo Alto.

B. S., University of Vermont, 1878; Ph. D., University of Leipzig, 1891; L. H. D., University of Vermont, 1892. Teacher in Washington (D. C.) High School, 1880-87; Assistant Professor of Psychology, Cornell University, 1891-92.

LEANDER MILLER HOSKINS, Professor of Applied Mathematics. *Palo Alto.*

B. C. E. and B. S., University of Wisconsin, 1883; M. S., 1885; C. E., 1887. Instructor in Engineering, University of Wisconsin, 1885-89, Assistant Professor of Mechanics, 1889-91, Professor of Theoretical and Applied Mechanics, 1891-92.

ROBERT EDGAR ALLARDICE, Professor of Mathematics.

27 Salvatierra St.

A. M., University of Edinburgh, 1882. Baxter Scholar in Mathematics, University of Edinburgh, 1882-83, Drummond Scholar in Mathematics, 1883-84; Assistant Professor of Mathematics University of Edinburgh, 1883-92.

*AMOS GRISWOLD WARNER, Professor of Applied Economics. [*Roca, Neb.*]

B. L., University of Nebraska, 1885; Ph. D., Johns Hopkins University, 1888. General Agent, Charity Organization Society, Baltimore, 1887-89; Professor of Political Economy, University of Nebraska, 1889-91; Superintendent of Charities, Washington, D. C., 1891-93.

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18 Alvarado Row.

B. S., Cornell University, 1874; M. S., 1876. Student, Summer School, Penikese, 1874, Harvard University, 1876, Universities of Strassburg and Berlin, 1887-88. Instructor in Botany, Cornell University, 1872-76, Assistant Professor, 1876-92.

*Absent on leave, 1898-99.

AUGUSTUS TABER MURRAY, Professor of Greek.
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*EDWARD ALSWORTH ROSS, Professor of Sociology.
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University Heights.

A. B., Yale University, 1877; LL. B., Boston University, 1893. Professor of Law, University of Michigan, 1891–92; Professor of Law, Northwestern University, 1892–94.

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A. B., College of New Jersey, Princeton, 1883; A. M., 1886; D. Sc., 1895. Assistant Electrician, U. S. Electric Lighting Co., Newark, N. J., 1885–88; Manager Insulated Wire Dept., John A. Roebling's Sons Co., Trenton, N. J., 1888–92; Treasurer, Germania Electric Co., Boston, Mass., 1892–93.

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8 Alvarado Row.

A. B., Hope College, 1882; Ph. D., Johns Hopkins University, 1888. Professor of French, Bowdoin College, 1889–90; Professor of the Romanic Languages, Indiana University, 1890–91; Associate in the Romanic Languages, Johns Hopkins University, 1891–93.

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[*In Europe.*]

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[*In Europe.*]

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*Absent on leave, 1893–99.

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WALTER MILLER, Professor of Classical Philology, and Secretary of the Faculty. *College Terrace.*

A. M., University of Michigan, 1884. Student, University of Leipzig, 1884-85, 1889-91; Member of the American School of Classical Studies at Athens, 1885-86; Instructor in Greek, University of Michigan, 1886-87, Instructor in Latin and Sanskrit, 1887-88, Acting Assistant Professor, 1888-89; Senior, Royal Archæological Seminary, University of Leipzig, 1890-91; Associate Professor of Greek, University of Missouri, 1891-92.

*WILLIAM HENRY HUDSON, Professor of English Literature.
[*In Europe.*]

Assistant, Library of Sion College, London, 1885-86; Librarian, City Liberal Club, London, 1889-90; Cataloguer, President White Library, Cornell University, 1890-91; Assistant Librarian, Cornell University, 1891-92.

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19 Salvatierra St.

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ARLEY BARTHLOW SHOW, Professor of European History.
Palo Alto.

A. B., Doane College, 1882; Graduate, Andover Theological Seminary, 1885; A. M., Doane College, 1892. Pastor Congregational Church, Waco, Neb., 1885-87; Professor of History and English Literature, Doane College, 1887-92.

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Ph. B., Cornell University, 1885; Ph. D., 1890. Fellow in History and Political Science, Cornell University, 1885-86, Instructor in English, 1886-91, Assistant Registrar and President's Secretary, 1890-91.

VERNON LYMAN KELLOGG, Professor of Entomology.
27 Salvatierra St.

B. S., University of Kansas, 1889; M. S., 1892. Student, Cornell University, 1891, University of Leipzig, 1893; Assistant Professor of Entomology, University of Kansas, 1890-93, Associate Professor, 1893-94.

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Palo Alto.

B. P., Syracuse University, 1885; M. P., 1889. Instructor in Freehand Drawing, Cornell University, 1885-88; Principal, Fine Art Department, Government Art School and Parkdale Art School, Toronto, 1889-90; Instructor in Art, Buchtel College, 1890-91.

JAMES PERRIN SMITH, Professor of Mineralogy and Paleontology. *Palo Alto.*

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*Absent on leave, 1898-99.

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Ph. B., Columbia College, 1888. Assistant Chemist, Bethlehem Iron Co., 1887; Instructor in Chemistry, Lehigh University, 1888-91; Chemist, Ordnance Department, U. S. N., Washington, D. C., 1891-92.

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A. B., Harvard College, 1889. Assistant Professor of English, Hobart College, 1889-90; Instructor in English, Harvard University, 1890-92.

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A. B., Allegheny College, 1881; A. M., 1884; Ph. D., 1888. Teacher of Natural Science, Pennsylvania State Normal School, 1881-84; Professor of Geology and Botany, Illinois Wesleyan University, 1884-88; Professor of Geology and Biology, University of the Pacific, 1888-91.

FRANK ALBERT FETTER, Acting Professor of Economics. *Palo Alto.*

A. B., Indiana University, 1891; Ph. M., Cornell University, 1892; Ph. D., University of Halle, 1894. Instructor in Political Economy, Cornell University, 1894-95; Professor of Economics and Social Science, Indiana University, since 1895.

ALPHONSO GERALD NEWCOMER, Associate Professor of English. *Palo Alto.*

A. B., University of Michigan, 1887; A. M., Cornell University, 1888. Fellow in Classics, Cornell University, 1887-88; Principal, Mt. Morris (Ill.) H. S., 1888-89; Instructor in Latin and French, Knox College, 1889-91.

*ARTHUR BRIDGMAN CLARK, Associate Professor of Drawing. [*New York City.*]

B. Ar., Syracuse University, 1888; M. Ar., 1891. Director of Trade Schools and Instructor in Drawing, New York State Reformatory, Elmira, N. Y., 1888-89; Instructor in Architecture, Syracuse University, 1889-92.

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Ph. B., De Pauw University, 1889; A. M., Leland Stanford Jr. University, 1893; Ph. D., University of Würzburg, 1896. Assistant in Biology, De Pauw University, 1888-89; Professor of Biology, Olivet College, 1889-92; Student, Würzburg, Zürich, and Naples, 1894-96.

†Died January 6, 1899.
*Absent on leave, 1898-99.

GEORGE CLINTON PRICE, Associate Professor of Zoology.
Palo Alto.

B. S., De Pauw University, 1890; Ph. D., Leland Stanford Jr. University, 1897. Student in Biology, Johns Hopkins University, 1890–92, University of Münich, 1895–96.

JOHN CHARLES LOUNSBURY FISH, Associate Professor of Civil Engineering. *Palo Alto.*

C. E., Cornell University, 1892. Instructor in Civil Engineering, Cornell University, 1892–93.

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University Heights.

Graduate, Elatma (Russia) Gymnasium, 1885; A. B., Cornell University, 1892; A. M., 1894. Student, St. Petersburg Institute of History and Philosophy, 1885–87; Teacher, Okhta Trade School, St. Petersburg, 1887–89; Cataloguer, President White Library, Cornell University, 1890–96; Librarian, Indiana University, 1896–98.

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9 Salvatierra St.

A. B., Indiana University, 1891. Professor of Physical Science, Vincennes University (Ind.), 1891–93, President, 1893–96; Superintendent of City Schools, San Diego, Cal., 1896–98.

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B. L., University of Wisconsin, 1887; A. M., Harvard University, 1891. Student in Law, University of Wisconsin, 1887–88, Instructor in Rhetoric, 1888–89, Instructor in History, 1889–90; Assistant in History, Harvard University, 1891–92; Acting Assistant Professor of History, University of Michigan, 1892–93.

*MARY ROBERTS SMITH, Assistant Professor of Sociology.
[*Ithaca, N. Y.*]

Ph. B., Cornell University, 1880; M. S., 1882; Ph. D., Leland Stanford Jr. University, 1896. Teacher of History, Washington, D. C., High School, 1882–84; Teacher of History, Private School, Cincinnati, O., 1884–86; Instructor in History and Economics, Wellesley College, 1886–90, Registrar and Secretary of Board of Examiners, 1889–90.

MERRITT EUGENE TAYLOR, Assistant Professor of Physics.
Palo Alto.

B. S., Northwestern University, 1883; M. S., 1884. Assistant in Chemistry, Northwestern University, 1883–84, Instructor in Mathematics, 1884–86; Student at Universities of Berlin, Zürich, and Johns Hopkins, 1886–89; Electrician, Incandescent Lamp Co., Chicago, 1889–92.

STEWART WOODFORD YOUNG, Assistant Professor of Chemistry. *27 Salvatierra St.*

B. S., Cornell University, 1890. Assistant in Chemistry, Cornell University, 1890–91; Instructor in Chemistry, Swarthmore College, 1891–93.

FREDERICK JOSEPH ARTHUR DAVIDSON, Assistant Professor of Romanic Languages. *Palo Alto.*

A. B., University of Toronto, 1890; A. M., 1893. Student, University of Leipzig, 1890–92; Fellow and Instructor in Romanic Languages, University of Toronto, 1892–95; Examiner in the University of Toronto, and to the Education Department of the Province of Ontario.

*Absent on leave, 1898–99.

HERMAN DE CLERCQ STEARNS, Assistant Professor of Physics. *3 Salvatierra St.*

A. B., Leland Stanford Jr. University, 1892; A. M., 1893. Student, University of Berlin, 1897–98.

DANIEL WILLIAM MURPHY, Assistant Professor of Physics. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1892; A. M., 1893; Ph. D., 1896. Student at the Physikalische Technische Reichsanstalt and the University of Berlin, 1894–95.

GUIDO HUGO MARX, Assistant Professor of Mechanical Engineering. *Palo Alto.*

M. E., Cornell University, 1893. With Gleason Machine Tool Co., Rochester, N. Y., 1893–94; with Bement & Miles, Philadelphia, 1894–95.

GEORGE ARCHIBALD CLARK, Secretary to the University. *14 Alvarado Row.*

B. L., University of Minnesota, 1891. Secretary, U. S. Fur Seal Commission, 1896–98.

KARL G. RENDTORFF, Assistant Professor of German. *Palo Alto.*

A. M., Leland Stanford Jr. University, 1894; Ph. D., 1896. Student, University of Giessen, 1884–85, University of Kiel, 1885–91.

OLIVER MARTIN JOHNSTON, Assistant Professor of Romanic Languages. *Palo Alto.*

A. B., Mississippi College, 1890; A. M., 1892; Ph. D., Johns Hopkins University, 1896. Principal, Preparatory Department, Mississippi College, 1890–91, Professor of English and History, 1891–93; Fellow in Johns Hopkins University, 1895–96; Lecturer in French Philology, Bryn Mawr College, 1896–97.

CLYDE AUGUSTUS DUNIWAY, Assistant Professor of History. *Encina Hall.*

A. B., Cornell University, 1892; A. M., Harvard University, 1894; Ph. D., 1897. Instructor in History, Harvard University and Radcliffe College, 1896–97.

GEORGE JAMES PEIRCE, Assistant Professor of Botany and Plant Physiology. *18 Alvarado Row.*

B. S., Harvard University, 1890; Ph. D., University of Leipzig, 1894. Assistant in Botany, Harvard University and Radcliffe College, 1890–92; Parker Fellow in Harvard University, studying in Bonn, Leipzig, and Münich, 1892–94; Assistant Professor of Botany, Indiana University, 1895–97.

EDWARD DANA DURAND, Assistant Professor of Finance and Administration. *5 Salvatierra St.*

A. B., Oberlin College, 1893; Ph. D., Cornell University, 1896. Legislative Librarian, New York State Library, 1896–97; Student, University of Berlin, 1897.

EDWIN DILLER STARBUCK, Assistant Professor of Education. *Palo Alto.*

A. B., Indiana University, 1890; A. M., Harvard University, 1895; Ph. D., Clark University, 1897. Teacher of Mathematics and Latin, Spiceland (Ind.) Academy, 1890–91; Professor of Mathematics, Vincennes (Ind.) University, 1891–93; Fellow in Psychology, Clark University, 1895–97.

CHARLES WILSON GREENE, Assistant Professor of Physiology. *5 Salvatierra St.*

A. B., Leland Stanford Jr. University, 1892; A. M., 1893; Ph. D., Johns Hopkins University, 1898. Instructor in Zoology, Marine Biological Laboratory, Woods Holl. Mass., 1896, 1897; Fellow in Physiology, Johns Hopkins University, 1897-98.

*HAROLD HEATH, Assistant Professor of Zoology. [*Pacific Grove, Cal.*]

A. B., Ohio Wesleyan University, 1893. Assistant in Biology, Ohio Wesleyan University, 1891-93; Professor of Natural Science, University of the Pacific, 1893-94; Fellow in Zoology, University of Pennsylvania, 1896-98.

CHARLES ELLWOOD COX, Assistant Professor of Mathematics. *College Park.*

A. B., Haverford College, 1880; A. M., Leland Stanford Jr. University, 1893. Principal of Friends Academy, Le Grand, Iowa, 1880-85; Professor of Mathematics, University of the Pacific, 1886-91.

CLEMENT AUSTIN COPELAND, Assistant Professor of Electrical Engineering. *Alondra Hall.*

M. E., Cornell University, 1896. Secretary, Electric Rapid Transit Street Car Co., San Diego, 1888-92; Electrician, Copper Queen Mining Co., Bisbee, Ariz., 1896-97; Assistant Superintendent, Edison Electrical Co., Los Angeles, 1897-98.

JOHN FLESHER NEWSOM, Assistant Professor of Mining and Metallurgy. *15 Salvatierra St.*

A. B., Indiana University, 1891; A. M., Leland Stanford Jr. University, 1893. Assistant, Arkansas Geological Survey, 1891-95; Instructor in Geology, Indiana University, 1894-96, Assistant Professor, 1896-98.

CLARKE BUTLER WHITTIER, Assistant Professor of Law. *16 Alvarado Row.*

A. B., Leland Stanford Jr. University, 1893; LL. B., Harvard University, 1896.

*MARGARET E. SCHALLENBERGER, Instructor in Education. [*Ithaca, N. Y.*]

A. B., Leland Stanford Jr. University, 1898. Teacher in State Normal School, San Jose, 1887-92; Principal of Training Department, 1892-93; Student, Cornell University, 1895-97, 1898-99.

IRENE HARDY, Instructor in English. *Palo Alto.*

A. B., Antioch College, 1885. Teacher of English and Latin, Preparatory School, Antioch College, 1874-76; Head of English Department and Teacher of Entomology, Oakland (Cal.) High School, 1877-83, Teacher of English, 1887-92.

*ELMER ELSWORTH FARMER, Instructor in Electrical Engineering. [*In Europe.*]

A. B., Leland Stanford Jr. University, 1895; E. E., 1897

HANS FREDERICK BLICHFELDT, Instructor in Mathematics. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1896; Ph. D., University of Leipzig, 1898.

*Absent on leave, 1898-99.

ALFRED FRANCIS WILLIAM SCHMIDT, Instructor in German. *32 Alvarado Row.*

A. B., Leland Stanford Jr. University, 1895.

CLARA S. STOLTENBERG, Instructor in Physiology. *14 Alvarado Row.*

A. B., Leland Stanford Jr. University, 1896; A. M., 1897.

ZOË WORTHINGTON FISKE, Instructor in Drawing and Painting. *Palo Alto.*

B. P., Syracuse University, 1891. Student and Member Art Students' League, New York, 1892–94; Student, Academie Montparnasse, Paris, 1895–96.

EDWARD LAMBE PARSONS, Instructor in the History of Philosophy. *Menlo Park.*

A. B., Yale University, 1889. Student, Union Theological Seminary, New York, 1889–92, Fellow, 1892–94; Student, University of Berlin, 1892–94; Instructor, New York Training School for Deaconesses, 1894–95.

ELEANOR BROOKS PEARSON, Instructor in Rhetoric. *Palo Alto.*

A. B., University of Michigan, 1891. Principal, Castilleja Hall, 1891–98.

JOHN O. SNYDER, Instructor in Zoology. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1897; A. M., 1899.

THOMAS ANDREW STOREY, Instructor in Hygiene and Organic Training. *Encina Gymnasium.*

A. B., Leland Stanford Jr. University, 1896.

MAX GOETHE WRIGHT, Instructor in Romanic Languages. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1896; A. M., 1897.

MAUD MARCH, Instructor in Hygiene and Organic Training. *19 Salvatierra St.*

JEFFERSON ELMORE, Instructor in Latin. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1895.

JOSEPH HENRY HOWARD, Instructor in Latin. *Palo Alto.*

A. B., Indiana University, 1888; A. M., 1890. Graduate Student, Stanford, Chicago, and Johns Hopkins Universities, 1891–96. Instructor in Latin, Indiana University, 1893–94, Assistant Professor, 1894–98.

ROBERT ECKLES SWAIN, Instructor in Chemistry. *Palo Alto.*

A. B., Leland Stanford Jr. University, 1899.

‡JACKSON ELI REYNOLDS, Instructor in Law. [*New York City.*]

A. B., Leland Stanford Jr. University, 1896.

GEORGE LUTHER LINCOLN, Instructor in French. *Alondra Hall.*

A. B., Harvard University, 1896; A. M., 1897. Student, The Sorbonne and College de France, 1894–95.

‡ Beginning September, 1899.

ASSISTANTS.

JULIUS EMBRET PETERSON, Foreman of the Forge.
Palo Alto.

EDWARD SOULE, Foreman of the Woodworking Shop.
Palo Alto.

EDGAR STEWART AYRES, Assistant in Mechanical Engineering. *Palo Alto.*

FREDERIC ATHELING, Assistant in Mathematics.
Palo Alto.
B. S., University of Wyoming, 1898. Principal of Public Schools, Park Springs, Wyo., 1897.

FRANK GEORGE BAUM, Assistant in Electrical Engineering.
Encina Hall.
A. B., Leland Stanford Jr. University, 1898.

GEORGE FREDERICK MADDOCK, Assistant in Electrical Engineering. *College Terrace.*

MARTHA CONSTANCE SMITH, Assistant in English.
6 Salvatierra St.
Ph. B., Northwestern University, 1891. Graduate student, University of Chicago, 1894, 1897.

‡ LUCILE EAVES, Assistant in History of the Pacific Slope.
A. B., Leland Stanford Jr. University, 1894.

‡ BLANCHE JOSEPHINE ANDERSON, Assistant in Ancient History.
A. B., Oberlin College, 1890; A. M., Leland Stanford Jr. University, 1898.

WILLIAM APPLETON SNOW, Assistant in Entomology.
29 Salvatierra St.
B. S., University of Kansas, 1891; M. S., 1894.

WILLIAM FREEMAN SNOW, Assistant in Hygiene.
Palo Alto.
A. B., Leland Stanford Jr. University, 1896; A. M., 1897.

ROBERT EVANS SNODGRASS, Assistant in Entomology.
Palo Alto.

NEWTON CLEAVELAND, Laboratory Assistant in Physiology.
Encina Hall.

WILLIAM DRAPER HARKINS, Laboratory Assistant in Chemistry. *Palo Alto.*

‡ Beginning September, 1899.

RALPH ARNOLD, Laboratory Assistant in Mineralogy.
Encina Gymnasium.

WARREN HULL, Assistant in the Gymnasium.
Palo Alto.

HORACE TARR BINGHAM, Assistant in the Gymnasium.
Encina Gymnasium.

HALBERT WILLIAM CHAPPELL, Assistant in the Gymnasium.
Palo Alto.

GRACE CLYDE GILMAN, Assistant in the Gymnasium.
2 Alvarado Row.

STELLA ROSE, Assistant in the Gymnasium.
2 Alvarado Row.

VERA TOWNSEND, Assistant in the Gymnasium.
Palo Alto.

FLORENCE HUGHES, Cataloguer. *Palo Alto.*

JOHN EDWARD HEALEY, Library Assistant.
Palo Alto.

LILLIAN PEARLE GREEN, Library Assistant.
15 Salvatierra St.

WESLEY HERMAN BEACH, Library Assistant.
Encina Hall.

ROY VALENTINE REPPY, Library Assistant.
Lasuen Ave.

SAMUEL PERCY HARDY, Library Assistant.
Lasuen Ave.

ARTHUR W. THOMAS, Curator of the Art Museum.
Museum.
Graduate, Brighton College, England, 1890.

JOHN EZRA McDOWELL, Assistant to the Registrar.
Mayfiel

WALTER CLARK, Stenographer. *Encina Hall.*

LILLIAN EMELINE RAY, Mistress of Roble Hall.
Roble Hall.
A. B., Leland Stanford Jr. University, 1897.

FRANCES ELIZABETH SHORT, Mistress of Madroño Hall.
Madroño Hall.

LECTURERS.

ROCKWELL DENNIS HUNT, Lecturer on Pacific Slope History. *College Park.*

Ph. B., Napa College, 1890; A. M., 1892; Ph. D., Johns Hopkins University, 1895. Professor of History, Napa College, 1891–93; Professor of History and Political Science, University of the Pacific, since 1895.

CURTIS H. LINDLEY, Lecturer on Mining Law. *San Francisco.*

JACOB VOORSANGER, Lecturer on the Jewish Framework of Christianity. *San Francisco.*

Rabbi, Amsterdam, 1873; D. D., Cincinnati, 1894. Rabbi, Temple Emanu-El, San Francisco, since 1886; Professor of the Semitic Languages and Literatures, University of California, since 1896.

OTHER OFFICERS.

CHARLES EDWARD HODGES, Resident Architect. *Palo Alto.*

ROBERT HENRY MOORE, Chief Engineer. *Palo Alto.*

JOHN J. LEWIN, Electrician. *Palo Alto.*

GEORGE ADDERSON, Overseer of Buildings. *Encina Hall.*

CHARLES F. MOORE, University Plumber. *Menlo Park.*

CHARLES C. WALLEY, University Carpenter. *Mayfield.*

J. A. MARTIN, Gardener. *Palo Alto.*

STANDING COMMITTEES.

The Registrar is ex-officio *Chairman of the Committees on Admission and Advanced Standing, Registration, Entrance Requirements, and Graduation.*

Ways and Means: Branner, Howard, Marx, Flügel, Jenkins.
The Vice-President is Chairman of the Committee on Ways and Means and Acting President during the absence of the President.

Student Affairs: Green, Gilbert, Richardson, Branner, Jenkins.

Admission and Advanced Standing: Elliott, Murray, Miller, Matzke, Hoskins.

Scholarship: Gilbert, Richardson, Murray, Griffin, Elliott.

Registration: Elliott, Wood, Marx, Kellogg, Cubberley.

Entrance Requirements: Elliott, Anderson, Allardice, Goebel, Lenox.

Graduation: Elliott, Pease, Jenkins, Hoskins, Howard.

Doctor's Degree: Howard, Flügel, Murray, Campbell, Sanford.
In the case of each candidate for the Doctor's degree the professors representing the major and minor requirements will be ex-officio *members of this Committee.*

Master's Degree: Fairclough, Lathrop, Goebel, Allardice, Fish.
In the case of each candidate for the Master's degree the major professor will be ex-officio *a member of this Committee.*

Chapel Services: Thoburn, Murray, Miller, Show, Johnston.

Library: Nash, Babine, Branner, Dudley, Show, Mary, Griffin.

University Publications: Pease, Nash, Howard, Little, Elliott.

Contests and Prizes: Lathrop, Show, Fairclough, Fetter, Duniway.

Teachers' Certificates: Cubberley, Jenkins, Miller, Clark, Elliott.

Musical Matters: Campbell, Goebel, Lathrop, Newcomer, Young.

University Extension: Anderson, Fetter, J. P. Smith, Brown, Jenkins.

Public Exercises, Lectures, and Social Affairs: Newcomer, Nash, Thoburn, G. A. Clark, Elliott.

Students' Aid: Griffin, Thoburn, Wing, Dudley, Price.

Athletics: Richardson, Angell, Wood, Branner, Kellogg.

Legislation: Abbott, Angell, Green, Durand, Whittier.

Hopkins Laboratory: Price, Gilbert, Jenkins, McFarland, Kellogg.

Organization and Administration.

Foundation.

The founding, at Palo Alto, of "a university for both sexes, with the colleges, schools, seminaries of learning, mechanical institutes, museums, galleries of art, and all other things necessary and appropriate to a university of high degree," was determined upon by the Hon. Leland Stanford and Jane Lathrop Stanford, in 1884. In March of the year following the Legislature of California passed an Act providing for the administration of trust funds in connection with institutions of learning. November 14, 1885, the Grant of Endowment was publicly made, in accordance with this Act, and on the same day the Board of Trustees held its first meeting, in San Francisco. The work of construction was at once begun, and the corner-stone laid May 14, 1887, the nineteenth anniversary of the birth of Leland Stanford, Jr. The University was formally opened to students October 1, 1891.

Name and Purpose.

The idea of the University, in the words of its founders, "came directly and largely from our son and only child, Leland; and in the belief that had he been spared to advise as to the disposition of our estate, he would have desired the devotion of a large portion thereof to this purpose, we will that for all time to come the institution hereby founded shall bear his name, and shall be known as The Leland Stanford Junior University."

The object of the University, as stated in its Charter, is "to qualify students for personal success and direct usefulness in life," and its purposes, "to promote the public welfare by exercising an influence in behalf of humanity and civilization, teaching the blessings of liberty regulated by law, and inculcating love and reverence for the great principles of government as derived from the inalienable rights of man to life, liberty, and the pursuit of happiness."

Location.

The University is located on the Palo Alto estate in the Santa Clara Valley, thirty-three miles southeast of San Francisco, on the Coast Division of the Southern Pacific Railway. The estate consists of eight thousand four hundred acres, partly lowland and partly rising into the foothills of the Sierra Morena. On the

grounds are the residence of the founders and an extensive arboretum containing a great variety of shrubs and trees. The Bay of San Francisco lies about three miles east of the University buildings, and across the bay the Monte Diablo Range rises to the height of over four thousand feet. The Lick Observatory, crowning Mount Hamilton, the highest of the range, is plainly visible. To the southwest, between the valley and the ocean, is the heavily wooded Santa Cruz Range, two thousand to four thousand feet in height.

The Santa Clara Valley is one of the most attractive portions of the State in climate, in natural beauty, and in the fertility and adaptiveness of its soil to all the varied fruits of California. The characteristics of the climate are its evenness of temperature, its pure and bracing air, and its freedom alike from the fogs and harsh winds of the coast and from the oppressive summer heat of the interior valleys. In winter the mercury rarely falls below 30°, and the average midday temperature is about 55°; in summer the average midday temperature is between 75° and 80°, while the nights are always cool. The rainfall of about fifteen inches is chiefly confined to the months from December to April, inclusive.

Endowment.

The landed endowment of the University, in addition to the Palo Alto estate, consists of the Vina estate, in Tehama County, of fifty-nine thousand acres, and the Gridley estate in Butte County, of twenty-two thousand acres. The Stanford residence in San Francisco has also been deeded to the University by Mrs. Stanford. The balance of the University endowment is in interest bearing securities.

Buildings.

In arranging buildings and grounds the plan has been to conform them to the peculiar climatic conditions of California, and to provide for indefinite expansion, without crowding or distortion. The original plan contemplated a series of quadrangles, to be erected as the needs of the University might demand, and intended to furnish facilities for all general University work. Surrounding these were to be various detached buildings for miscellaneous purposes.

The central group of buildings is to constitute two quadrangles, one entirely surrounding the other. Of these, the inner quadrangle, with the exception of the chapel, is now completed. Its twelve one-story buildings are connected by a continuous open arcade, facing a paved court five hundred and eighty-six feet

long, by two hundred and forty-six feet wide, or three and a quarter acres. The buildings are of a buff sandstone, somewhat varied in color. The stonework is of broken ashlar, with rough rock face, and the roofs are covered with red tile. The architectural *motif* is to be found in the old Spanish Missions of California. Work on the outer quadrangle was begun in July, 1898, and the Assembly Hall and Library building will be completed in 1899.

The *Assembly Hall* will form a part of the outer quadrangle continuous with the Library building, with a frontage of one hundred and eight feet. An arcade fourteen feet wide runs the entire length, and on the west side is extended to connect with the inner quadrangle. The Assembly Hall, including galleries, will have a seating capacity of sixteen hundred. The stage will be 36x28 feet, with two dressing rooms on each side. The stage and auditorium will be lighted by two large ornamental dome skylights.

Behind the central quadrangles are to be the workshops and laboratories of the engineering departments, power-houses, etc.—of which the shops, foundry, and power-houses are now completed.

The dormitories are east and west of the quadrangle. *Encina Hall*, for young men, is at the east and occupies a ground area of 312 x 150 feet. It is four stories high, built of the same material as the quadrangle, and decorated with end arcades, a central arched porch, and mosaic work. It is provided with electric lights, hot and cold water, steam heat, suitable furniture, bathrooms on each floor, and has accommodations for three hundred students. *Roble Hall*, for young women, is at the west. It is of concrete, is about a third the size of Encina Hall, and will accommodate one hundred students. *Madroño Hall* is a frame building, at present used as an annex to *Roble Hall*. It will accommodate about thirty students.

Encina and *Roble Gymnasiums* are substantial frame buildings, equipped with the necessary apparatus and appliances for physical training.

The *University Inn* is a frame building, just east of the quadrangle, erected in 1898. It is intended primarily as a University commons for students living on the campus, and is leased and managed by Mr. M. Johnson, of San Francisco.

The *Leland Stanford Junior Museum*, a concrete building, 313 x 156 feet, including wings, is situated a quarter of a mile from the quadrangle, and on the west side of the Palo Alto avenue. At the main entrance, four large columns form the principal feature of the façade. The vestibule is 40 x 56 feet and

70 feet high, and is faced with marble. The Museum contains the archæological and art collections of the University.

The collection made by Leland Stanford, Jr., between 1880 and 1884, and intended as the nucleus of a museum to be established in San Francisco, has been placed here and his own arrangement reproduced. The collection includes especially Egyptian bronzes, Greek statuettes, and Greek and Roman glass of interest and value. One room is devoted to memorials of Senator Stanford. The Cesnola collection contains five thousand pieces of Greek and Roman pottery and glass. The Egyptian collection comprises casts of statuary and bas reliefs, mummies, scrolls, scarabees, etc., collected by Brugsch Bey, Curator of the Gizeh Museum, and Libyan pottery of the date of 3,000 B. C., excavated by Dr. F. Petree. It contains, besides, a collection of embroideries, the gift of Mr. Timothy Hopkins, which is made up of linen dating from the sixth to the twenty-first dynasty, and also Coptic embroidery. The American collection is made up principally of mound relics; there is also a collection of stone implements from Copenhagen, Denmark. The Chinese and Japanese collection comprises bronzes, arms, china, lacquer, specimens of wood carving, cabinets, embroideries, musical instruments, etc. The Corean collection, the gift of Mr. Hopkins, contains costumes, household goods, cabinets, etc. Mr. Hopkins has also placed in the Museum a collection of ancient and modern coins and metals. The fine arts collections have been made mainly by Mrs. Stanford. There is also the Anna Lathrop Hewes collection of paintings, statuary, mosaics, etc., and a collection of pictures in oil and water colors presented by the Hon. Thomas Welton Stanford, of Australia. In the Natural History room, in the north wing, a large collection of birds' eggs and skins, donated by the late Thomas Flint of San Francisco, has been put on exhibition, together with a varied number of sea and land shells. The two new wings, now being built, will add eight more galleries, 30 x 110 feet, each wing being joined to the original building by a rotunda.

The grounds immediately about the University have been reserved, in part for experimental purposes, and in part as residence sites for members of the Faculty and others who may desire to live on the University campus. About thirty cottages have already been erected.

Library.

One building of the quadrangle is at present devoted exclusively to the Library. It has a shelving capacity of forty thousand volumes, and the reading-room will accommodate one hun-

dred and twenty-five students. The Law Library occupies rooms in Encina Hall.

The Library now numbers forty-two thousand volumes and eighteen thousand pamphlets. The most notable gift to the Library has been the valuable collection of railway books presented by Mr. Timothy Hopkins of San Francisco. This special collection is unusually rich in materials for the study of the early history of railways in Europe and America, and the donor has made generous provision for the maintenance and increase of the collection until it shall be practically complete. A catalogue of the Hopkins Railway Library has been published, thus greatly facilitating its use.

Another notable gift has been the collection of books and pamphlets relating to Australasia, presented to the Library by the Hon. Thomas Welton Stanford, of Melbourne, Australia. The University has also acquired the valuable library of the late Professor Hildebrand, of Leipzig, consisting mainly of works on Germanic philology.

In addition to the University Library, various large collections within reach can be made available to a greater or less extent. The Free Public, Mechanics Institute, Mercantile, and other libraries in San Francisco, can be used for reference. There are also at the University several large private libraries to which advanced students have access.

The new Library building, which will be ready for occupancy in August, 1899, is the gift of the Hon. Thomas Welton Stanford. It is built of the same buff sandstone used in the other University buildings, and forms the main portion of the right wing of the façade of the quadrangle. The building is two stories in height, above the basement, with an arcade sixteen feet broad running its entire length. It has a frontage of one hundred and sixty feet, and is one hundred and fifty-eight feet in width, including ell. The stack room, which forms the ell, is 70 x 74 feet. The main reading room, lighted by a circular dome of stained glass, forty feet in diameter, will seat three hundred people; in addition, there will be a number of seminary rooms, each about 40 x 25 feet. The stack room has a capacity of 250,000 volumes.

Scientific Collections.

It is intended to bring together in the museums of the University a full representation of the natural history and mineral products of California, collections of all books, pamphlets, photographs, and maps bearing upon the early history of the West,

and full collections of Indian antiquities and illustrations of aboriginal life. It is desired to receive donations from all persons who are interested in the work and who have material of value to the museums. Collections sent in this way will be carefully labeled and preserved, and the name of the donor will be kept on record. Messrs. Wells, Fargo & Co. generously offer to transport such gifts to the University free of charge, and have instructed their officials "to receive and promptly forward such offerings as may be tendered from time to time."

Trustees.

The general management and control of the institution is vested in a board of trustees, originally numbering twenty-four, and chosen for life. By a modification of the charter, effected by Mrs. Stanford in 1897, no vacancies will be filled until the number is reduced to fifteen, and future appointments will be for a term of ten years. The charter provides that the founders, during their lives, shall "perform all the duties and exercise all the powers and privileges enjoined upon and vested in the trustees."

Faculty and Council.

The Faculty consists of the president, professors, associate professors, assistant professors, and instructors, aided by non-resident lecturers, assistants, and other officers. Its routine work is divided among various committees, responsible primarily to the president.

The University Council consists of the president, professors, and associate professors. To the Council are entrusted the determination of requirements for admission, and for the various degrees, and the recommendation of candidates for graduation. It also acts as an advisory body on any questions of general policy that may be submitted to it by the president or trustees.

Government.

In the government of the University the largest liberty consistent with good work and good order is allowed. Students are expected to show both within and without the University such respect for order, morality, personal honor, and the rights of others as is demanded of good citizens. Failure to do this will be sufficient cause for removal from the University.

Religious Services.

Religious instruction is given in accordance with the provision of the Charter, which prohibits sectarian instruction, but requires

the teaching of the "immortality of the soul, the existence of an all-wise and benevolent Creator, and that obedience to His laws is the highest duty of man." Regular services are held in the chapel Sunday mornings, and a vesper service every Thursday afternoon.

The University Chapel Union attempts to organize the religious forces of the University without defining beliefs, "for the promotion of the spiritual life through worship and service." A Young Men's Christian Association, and a Young Women's Christian Association have also been organized and hold regular meetings. The Associations compile each year a *Hand-Book* containing special information relating to the details of University life at Palo Alto. This hand-book will be mailed to prospective students on application to the Registrar.

Student Organizations.

In addition to the Christian Associations noted above, numerous general student organizations have been formed for mutual assistance and improvement in various lines. Two college journals, the *Daily Palo Alto* and the weekly *Sequoia*, are published by the students. The *Quad* is an annual, published by the Junior Class.

Departments.

The professorship is the unit of organization, and each professor is independent in his own field. For convenience of classification the work of the University is grouped under the following departmental heads: Classical Languages; Germanic Languages; Romanic Languages; English Language and Literature; Psychology; Education; History; Economics and Social Science; Law; Mathematics; Physics; Chemistry; Botany; Physiology; Hygiene and Organic Training; Zoology; Geology; Drawing and Painting; Civil Engineering; Mechanical Engineering; Electrical Engineering.

The Hopkins Laboratory of Natural History, located at Pacific Grove, on the Bay of Monterey, is a branch of the biological work of the University.

Admission and Graduation.

CONDITIONS OF ADMISSION.

Candidates for admission must be at least *sixteen* years of age, or if special students, *twenty-one*. They must present certificates of good moral character, and if from other colleges or universities, must bring letters of honorable dismissal.

I. Entrance Subjects and Requirements.

For meeting the entrance requirements of the University, candidates are offered a choice of twenty-one subjects. These subjects are all reduced to the unit of a high school year, making thirty-two credits, and placed on an exact equality, except that subject 1 (English Composition) must be included in all entrance groups. Until September, 1900, *twelve* credits will be accepted for admission in full standing, and these may be made up of English Composition (one credit) and such other subjects (aggregating eleven credits) as may be selected by the candidate.

In 1900–01 *thirteen* credits will be required for admission in full standing.

Beginning with September, 1901, *fifteen* credits will be required for admission in full standing.

Until September, 1901, *ten* credits will be accepted for admission in *partial standing*. Beginning with September, 1901, *twelve* credits will be required for *partial standing*. All entrance deficiencies must be satisfied before graduation.

1. English Composition (1).
2. Elementary Algebra (2).
3. Plane Geometry (1).
4. Solid Geometry (½).
5. Trigonometry (½).
6. Advanced Algebra (1).
7. Physics (1).
8. Chemistry (1).
9. Physiology (1).
10. Botany (1).
11. Zoology (1).
12. Drawing (1).
13. Ancient History (1).
14. English History (1).
15. American History (1).
16. English Literature (1, or 2).
17. Spanish (1).
18. French (2, or 3).
19. German (2, 3, or 4).
20. Latin (2, 3, or 4).
21. Greek (2, or 3).

The numerals in parentheses indicate the counting value, in *credits*, of the various subjects.

The following will indicate the preparation necessary in the various subjects. Each entrance credit is intended to represent one full year's work in the preparatory school, with daily recitations. Two laboratory periods are regarded as the equivalent of one recitation period. Admission in full standing implies a four years' course in the high school, or its equivalent. A three years' high school course may be so arranged as to prepare for admission in partial standing.

1. English Composition.

Every candidate will be required to undergo a test of his ability to write exercises correct in spelling, punctuation, sentence structure, and paragraphing. He may be called upon, for instance, to write a business letter upon some assigned subject, to put into his own language an essay, the material of which is provided him, or to write from dictation; or his examination papers in other subjects may be submitted to the examiner in English; in short, he may be subjected to any fair test of his mastery of the English language for the practical purposes of life. (*1 credit.*)

[Students who are conditioned in English Composition will be given an opportunity to make up their deficiency in voluntary classes under private tutors approved by the University. These tutors will charge a fee not exceeding ten dollars a semester.]

2. Elementary Algebra.

The formulas of multiplication, the various methods of factoring, highest common factor, lowest common multiple, theory of fractional and negative exponents, radicals, equations of the first and of the second degree in one or more variables, theory of quadratic equations, the formation of equations with given roots, ratio, proportion, arithmetical and geometrical progressions. Stringham's Smith's Elementary Algebra, Wentworth's New School Algebra, Bowser's Academic Algebra, or an equivalent.

(*2 credits.*)

3. Plane Geometry.

A course such as is given in a good edition of Euclid, in the texts of Beman & Smith, Wentworth, or Bowser, including the solution of original exercises. (*1 credit.*)

4. Solid Geometry.

The fundamental propositions of solid and spherical geometry, with original exercises. (½ *credit.*)

5. Trigonometry.

The general formulas of plane trigonometry, with applications to the solution of triangles and the measurement of heights and

distances. Bowser's Elements of Trigonometry, Lock's Elementary Trigonometry, Wells's Plane Trigonometry, or an equivalent. (½ *credit.*)

6. Advanced Algebra.

Combinations and permutations, convergence of series, binomial theorem, logarithms, exponential and logarithmic series, partial fractions, and a short treatment of determinants. Chapters I–XXIV and XXXI of Charles Smith's Treatise on Algebra, or an equivalent. (½ *credit.*)

7. Physics.

The equivalent of one year's work in the high school, including both laboratory and text-book work. It is preferred that at least one-half the time be given to laboratory work in which the students perform individually such experiments as are described in the better class of laboratory manuals, of which Hall & Bergen's Physics may be named as an example. The text-book study should cover the ground of such a text as Nichols' Outlines, Gage's Elements, or Carhart & Chute's Physics. These books are not recommended as superior to others, but are mentioned as including about the amount of work on which the candidates should be prepared. (*1 credit.*)

8. Chemistry.

Beside the usual text-book and recitation work, each student should have a course in the laboratory, where he performs the experiments for himself. The amount of laboratory work desired cannot be obtained with less than four hours per week for one school year spent in actual laboratory work. It is preferred that the laboratory work be entirely upon *general*, rather than partly upon *analytical* chemistry. The course required is comprised in Richardson's Laboratory Manual and Principles of Chemistry, or in Remsen's Introduction to the Study of Chemistry, and is the equivalent of Chemistry courses 1 and *a* in the University. The inorganic portion of Roscoe's Elementary Chemistry, or of Elliot & Storer's Elementary Chemistry, with a proper course of laboratory experiments such as is given in Smith & Keller's Laboratory Manual, are also recommended as covering the course required. (*1 credit.*)

9. Physiology.

The elements of human physiology and hygiene, the equivalent of Martin's Human Body. The text-book work should be accompanied by experiment, dissection of animals and organs, and a certain amount of study of the tissues with the microscope.

Candidates who have taken only the work in elementary physiology and hygiene done in the grammar or intermediate grades are not prepared to offer the subject for entrance credit. The elementary physiology and hygiene of the grammar grades, in this regard, is in the same category as are the other subjects studied in the grammar grades, such as arithmetic and geography, which are assumed as preliminary to the subjects offered for entrance.

(*1 credit.*)

10. Botany.

A knowledge of plants and plant-structure and development obtainable from experimental work in connection with Bessey's or Campbell's Botany, or some similar work. At least two-thirds of the year's work should be devoted to the laboratory.

In stating the requirements for students presenting themselves for examination in botany, the main thing had in mind was that the work should be of a practical nature : that is, that the study should be done mainly from specimens and not from books. It must be borne in mind that botany is a department of biology, and means something more than the mere collecting and naming of specimens. A study of the growth and development of the forms studied is of the highest importance, and so far as possible should be made a prominent feature in the work. A good plan for most schools is to select a few typical representatives of the principal groups of plants, e. g., examples of the green, red, and brown algae, moulds, mildews, lichens, liverworts, mosses, ferns, etc., as well as representatives of the great divisions of the flowering plants. Examples of all these are everywhere accessible, and a knowledge of the main characteristics of each of the principal divisions of plants will be expected of the student. The forms selected are to be studied as exhaustively as circumstances will admit, and students should be expected to keep a careful record of their work in the form of notes and drawings made directly from the specimens as they are studied.

If possible the student should be allowed the use of a compound microscope, but when this is not practicable, microscopic demonstrations by the instructor are indispensable. The laboratory work of the students may be supplemented by such explanatory and text-book work as may be deemed necessary, but this must be understood to supplement and not to replace the laboratory work. (*1 credit.*)

11. Zoology.

A knowledge of the structure and relationships of a number of types of animals, gained by study and dissection of specimens in

the laboratory. Marshall & Hurst's Practical Zoology is recommended as a laboratory guide. (*1 credit.*)

12. Drawing.

The student is expected to possess the power to see visual facts—that is, proportion and light and shades — in the same degree of truthfulness, and to draw so as to show the possession of that power. It is impracticable to define exactly what degree of accuracy is required. In general, it can only be said that such a degree of accuracy will be required as might reasonably be expected to result from two hundred and forty hours of practice under good instruction. The candidate may draw almost anything which, in the opinion of the department, gives a basis for judging to what extent these ends have been attained. He may draw still-life, cast, portrait, architecture, or landscape. He will provide his own drawing materials for the examination, which may be whatever he is most accustomed to use, pen, pencil, charcoal, crayon, or brush. (*1 credit.*)

13–15. History.

Note-book requirements.—In addition to the text-book preparation the candidate will be required, in each of the three history subjects or in the substitutes allowed, to submit a history note-book containing notes on all lectures and readings, copies of outlines, exercises, etc., prepared for use in his school work, and such other matter as may serve to indicate the nature of his study. Full particulars concerning this part of the requirement will be furnished, on application, by any of the instructors in History. They will also gladly make suggestions concerning methods of study and the selection of reference libraries.

Substitutes.—In place of any of the three History subjects named the following substitutions will be accepted:

a. A full year in the High School in Mediaeval and Modern History.

b. A full year in the High School in the History and Government of the United States.

13. Ancient History.

a. The Oriental Nations.—The candidate should master Myers' General History, pp. 1–86, Fisher's Brief History of the Nations, pp. 1–58, and Adams' European History, pp. 1–16, or satisfactory equivalents.

b. Greece.—The best available text is Botsford's History of Greece (Macmillan, 1899). Oman's History of Greece, and Myers' General History, pp. 87–221, should also be studied. The

pertinent volumes in the "Epochs of Ancient History" Series are valuable for reference; also Cox's General History of Greece (Student Series).

c. Rome.—As the basis of study the pupil is advised to use Allen's Short History of the Roman People (reprinted in Myers' General History, pp. 222–365), and Pelham's Outlines of Roman History. For reference, use also Shuckburgh's History of Rome, How & Leigh's History of Rome, Bury's History of the Roman Empire (Student Series), and the "Epochs" Series. (*1 credit.*)

14. History of England.

The equivalent of Gardiner's Student's History of England, to Part X, and Porritt's The Englishman at Home. The Department of History will, on application, give suggestions with regard to equivalents, desirable supplementary readings, and methods of work. (*1 credit.*)

15. American History.

A thorough knowledge of some advanced text-book, such as Channing's Students' History of the United States, Montgomery's Students' History of the United States, McMaster's History of the United States, or the "Epochs of American History" Series, together with Macy's Our Government, or Fiske's Civil Government. These should be studied topically, in connection with illustrative material such as is contained in American History Leaflets, Old South Leaflets, Hart's American History told by Contemporaries, and Sheldon's Studies in American History. MacCoun's Historical Geography of the United States, will prove a valuable aid; and for further reading the American Commonwealths Series are recommended. (*1 credit.*)

16. English Literature.

a. Elementary.—Candidates for admission who offer subject 16*a* will be examined in reading aloud. In connection with this examination they will be tested in their ability to follow the course of thought in ordinary prose and verse, to use standard books of reference, to understand the structure of sentences, to catch simple allusions, and to see the force of simple figures of speech. The certificate of the teacher will be sufficient evidence of the amount of study done at school, the examination being intended as a test of the results of the school training. Such certificate, stating in detail the works read in preparation, should be handed to the examiner when the candidate presents himself at the University. Blanks for this purpose may be obtained from the Registrar.

The teacher may make out the course of reading from the following list of books, choosing two books from Group I, one from Group II, one from Group III, three from Group IV, and four from Group V:

Group I.—Shakspere's Merchant of Venice, Julius Cæsar, or Macbeth; the four Gospels (one book); the stories of the Creation and Fall, the Flood, Abraham, Isaac, Jacob, Joseph, and the Exodus, the books of Judges, Ruth, First and Second Samuel, Isaiah from chapter XL, and selections from the Psalms (one book).

Group II.—George Eliot's Silas Marner ($\frac{1}{2}$); Jane Austen's Pride and Prejudice ($\frac{1}{2}$); Thackeray's The Newcomes, or Henry Esmond.

Group III.—Scott's Ivanhoe, Rob Roy, or Quentin Durward; Cooper's The Last of the Mohicans.

Group IV.—The Sir Roger de Coverley Papers; Selections from Boswell's Life of Johnson; Irving's Alhambra, or Sketch Book; Hawthorne's House of the Seven Gables, or Twice Told Tales; Webster's First Bunker Hill Oration; De Quincey's Flight of a Tartar Tribe; Macaulay's Essay on Clive; Carlyle's Essay on Burns.

Group V.—Spencer's Faëry Queene, Book I, Cantos I, II, and III; Dryden's Palamon and Arcite; Pope's Rape of the Lock ($\frac{1}{4}$); Pope's Homer's Iliad, I, VI, XXII, XXIV; Goldsmith's Deserted Village ($\frac{1}{4}$); Gray's Elegy in a Country Churchyard ($\frac{1}{4}$); Burns's Tam o' Shanter and Cotter's Saturday Night ($\frac{1}{4}$); Keats's Eve of St. Agnes; Coleridge's Ancient Mariner; Scott's Lay of the Last Minstrel, Lady of the Lake, or Marmion; Lowell's Vision of Sir Launfal; Longfellow's Tales of a Wayside Inn.

(*1 credit.*)

[Substantial equivalents for any book in the foregoing list will be accepted. The list of books prescribed for entrance subject 1 at the University of California is acceptable as a substitute, except that Classic Myths must be replaced by a book from Group II.]

b. Advanced.—The examination in subject 16*b* will be similar to that in 16*a*, but the candidate will be expected to show greater insight and power of interpretation, and will be called upon to answer questions presupposing a thorough study of the books presented for the examination. Preparation should include a study of subject-matter, style, and structure.

Teachers may make out a course from the following list, selecting one book from Group I, one from Group II, and taking up the whole of Group III. Repetition of books offered for subject 16*a* should be avoided.

Group I.—Macbeth; Paradise Lost, books I and II; portions of the Bible.

Group II.—Macaulay's Essay on Clive, on Warren Hastings, on Milton (½), on Addison (½), or Life of Johnson (½); DeQuincey's Flight of a Tartar Tribe; Burke's Speech on Conciliation.

Group III.—Hales's Longer English Poems, omitting Spencer's Prothalamion and Shelley's Adonais, and employing only such annotations as are of value in giving a full understanding of the text; or Syle's From Milton to Tennyson, or equivalent selections from Shelley, Coleridge, Wordsworth, Tennyson, Browning, and Palgrave's Golden Treasury. (*1 credit*).

[Fair equivalents for 16*b*, such, for example, as the books prescribed for entrance subject 14 at the University of California, will be accepted.]

17. Spanish.

The preparation in Spanish should follow the same lines as those outlined below for French. The following books are recommended: Manning, Practical Spanish Grammar, Matzke's First Spanish Readings (Heath & Co.), Tamayo y Baus, Un Drama Nuevo (Jenkins, New York), Galdos, Dona Perfecta (Ginn & Co). (*1 credit*).

18. French.

The requirements for Elementary and Advanced French are intended to be an equivalent of those agreed upon by the Conference of representatives from Columbia, Cornell, Harvard, Pennsylvania, Princeton, and Yale Universities.

a. Elementary.—The requirements for Elementary French are as follows: 1. An accurate knowledge of the forms of the language, including the inflections, conjugations, and principal parts of verbs. Particular attention should be devoted to this part of the subject; constant drill in the verbal inflections, both written and oral, ought to give the desired results. Dictation exercises, where English forms are to be rapidly translated into French, are especially recommended. 2. The elements of French syntax, such as the uses of the article, the personal pronouns, and the subjunctive, the partitive constructions, and the agreement of the participles. 3. The ability to turn easy English into French. 4. The ability to translate ordinary French readily and rapidly. 5. The ability to pronounce French correctly. It is believed that a fairly good pronunciation of French can be obtained in the fitting schools, where students are still young and the organs of speech are more readily trained, if the necessary time is devoted to the subject. French pronunciation should be studied both theoreti-

cally and practically, and the differences of vowel qualities, of stress, pitch, and intonation between French and English should be pointed out.

These results ought to be secured from the careful study of an elementary grammar, such as Whitney's Practical French Grammar, Part I, or Grandgent's Short French Grammar; in prose composition, from the study of the exercises belonging to these grammars and the translation of the first thirty-four pages of Grandgent's Selections for French Composition; in reading, from the study of not less than four hundred duodecimo pages from the works of at least three different authors. While no definite authors are prescribed, the following are suggested as forming a suitable combination: Super's French Reader, Parts II and III, Souvestre, Un philosophe sous les toits, Halévy, L'Abbé Constantin, Labiche, Le voyage de Monsieur Perrichon, and De Vigny, La Canne de jonc. For the study of pronunciation Matzke's Primer of French Pronunciation (Holt & Co.) is recommended.

All candidates will be required to present a statement from their former teacher of the amount of work done and the text-books used. The examination will also contain a passage in French to be read aloud by the candidate. (*2 credits.*)

b. Advanced.—The requirements for Advanced French are as follows: 1. A thorough knowledge of modern French Syntax; 2. The ability to turn Modern French at sight into idiomatic English; 3. The ability to translate connected English Prose into French; 4. The ability to write French from dictation.

These results ought to be secured from the study of the syntax in any of the usual school grammars, such as Whitney's Practical French Grammar, Edgren's Compendious French Grammar, or Bevier's French Grammar, and from the reading of not less than six hundred duodecimo pages of prose and verse from at least four standard authors, in addition to the requirements for Elementary French. While no definite texts are prescribed, the following are recommended as forming a suitable combination: George Sand, La Petite Fadette, Merimée, Colomba, Victor Hugo, Hernani, Fontaines, Historiettes Modernes (D. C. Heath & Co.). The examination will include a test of pronunciation and the writing of French from dictation.

All candidates will be required to present a statement from their former teacher, mentioning the text-books used and the authors read. (*1 credit.*)

19. German.

The requirements in Elementary and Advanced German are essentially those agreed upon by the Conference of representatives from Columbia, Cornell, Harvard, Pennsylvania, Princeton, and Yale Universities.

a. Elementary.—A satisfactory preparation will require: The ability to translate easy German prose and verse at sight; an accurate knowledge of the principles of grammar, embracing especially inflections, word-order, syntax, the composition of words, the force of prefixes and suffixes, and the relation of the English and the German consonantal changes; the ability to translate easy prose from English into German; also the ability to pronounce German and to recognize German words and simple sentences when spoken; careful attention should be given to the rules for pronunciation, length of vowels, and accentuation, to insure the fluent and intelligent reading of the German texts used in the class-room. This preparation would be represented approximately, in reading, by Brandt's or Whitney's Reader, and the careful study of one or more modern dramas (about two hundred duodecimo pages of easy German); in grammar, by Whitney's, Brandt's, Joynes-Meissner's, or Collar-Eysenbach's Grammar; and in German prose, by the first twenty-six exercises in Harris's German Prose Composition.

All applicants must present a statement from their former teacher of the amount of German read and the text-books used.

(*2 credits.*)

b. Advanced.—A satisfactory preparation will require, in addition to the requirements for Elementary German: The ability to translate ordinary German prose and verse at sight; a thorough knowledge of word-formation, derivatives, and cognates; advanced German syntax, with especial reference to the uses of the tenses, the modal auxiliaries, and the subjunctive and infinitive moods; the ability to translate into German easy connected English prose.

It is believed that this preparation can be acquired by the careful reading of five hundred duodecimo pages of classical and contemporary prose and verse, in addition to the reading required for elementary German. It is recommended that at least one-half of this reading be selected from the following works: Lessing's Minna von Barnhelm, Goethe's Egmont, or Goetz von Berlichingen, Schiller's Wilhelm Tell, or Maria Stuart, Heine's Harzreise. For the preparation in translation from English into German the first fifty pages of von Jagemann's

German Prose Composition, or its equivalent, is recommended. It is desirable that candidates should acquire the ability to follow a recitation conducted in German, and to answer in simple German sentences.

All candidates are required to present a statement from their former teacher of the amount of German read and text-books used. (*1 credit.*)

c. A fourth credit in German may be given to candidates who fulfill, in addition to the preparation required in Elementary and Advanced German, the following requirements: Advanced German grammar and syntax; elements of the comparative grammar of English and German; study of Goethe's Hermann und Dorothea, or Iphigenia, Lessing's Nathan der Weise, and Schiller's Wallenstein, and the reading of advanced literary and scientific German prose; advanced German prose composition, and the ability to follow lectures given in German.

Candidates will present statements from their former teachers of the work done. (*1 credit.*)

20. Latin.

a. Elementary.—The requirements for Elementary Latin include accuracy in pronunciation, a thorough knowledge of the forms, familiarity with the simpler principles of syntax, a vocabulary of from fifteen hundred to two thousand common words, and the ability to translate easy prose at sight, and to write simple sentences.

These attainments ought to be secured from the careful study of an elementary text-book and about one hundred and twenty pages of classical prose (for instance, four books of Cæsar and two or three orations of Cicero), together with *daily* exercise in oral or written composition and occasional practice at sight reading. The examinations in Latin Composition for 1899 and 1900 will be based upon the third and fourth books of Cæsar's Gallic War, and the first two orations of Cicero against Cataline. (*2 credits.*)

b. Advanced.—The requirements for Advanced Latin include the ability to translate at sight the simpler portions of Cicero's orations and Vergil's Æneid, familiarity with the principles of Latin hexameter, and the power to translate a passage of connected English based on Cicero.

These attainments ought to be secured from the careful study of four or five orations of Cicero and six books of Vergil's Æneid, if supplemented by daily exercises in composition in connection with the Cicero, and by extensive practice in sight reading.

(*2 credits; without the prose composition, 1 credit.*)

21. Greek.

a. Elementary.—Grammar, the inflections, the formation of words, and the essential points of syntax; Xenophon's Anabasis, books I–IV, or an equivalent; prose composition (Collar & Daniell's text-book is recommended); translation at sight of easy prose. It is expected of every student that he be able to read Greek aloud without stumbling. (*2 credits.*)

b. Advanced.—Homer, Iliad, books I–III, or an equivalent; advanced prose composition. The candidate must show a thorough acquaintance with the forms and syntax of Homer, and must be able to scan any given passage exactly and to read it rhythmically. (*1 credit.*)

II. Admission on Examination.

Examinations in all entrance subjects are held at the University in January, May, and August–September, and will not be held at any other time or place. (But see section 12 under "Admission on Recommendation," p. 40.) Specimen examination papers may be obtained on application to the Registrar.

Entrance examinations are held in the following order (for dates see calendar, page 5):

First Day.—Solid Geometry and Physiology, 8:15; Elementary Algebra and Chemistry, 10:15; Plane Geometry and English History, 1:30; English Composition, 3:30.

Second Day.—Advanced Algebra and Physics, 8:15; Trigonometry and German, 10:15; American History and French, 1:30; Botany and Elementary Latin, 3:30.

Third Day.—Zoology and Advanced Latin, 8:15; Spanish and English Literature, 10:15; Greek and Drawing, 1:30; Ancient History, 3:30.

Candidates for admission may, if they prefer, take a part of their examinations a semester or a year before they propose to enter; but no account will be taken of examinations passed more than a year before the proposed time of entering.

III. Admission on Recommendation.

The University does not agree, in advance, to exempt the graduates of any school from all entrance examinations. Recommendations from the principal of any reputable preparatory school will be considered, and examinations waived in all entrance subjects fairly covered in the candidate's course of study, subject to the following conditions:

1. The candidate must have completed a full course in the

school and have been duly graduated after at least one year's attendance.

2. The candidate must be specifically recommended by the principal in the subjects in which exemption is sought.

3. The Faculty reserve the right to require an examination in any recommended subject, if for any reason the work done is deemed insufficient or unsatisfactory.

4. In English Composition recommendations must be supplemented by an exercise in writing English, at the University.

5. In Physics, Chemistry, Physiology, Botany, and Zoology, recommendations must be supplemented by the drawings and laboratory note-books of the candidate. These note-books should contain the actual notes taken in the laboratory, not copies, and drawings and notes must be certified by the teacher. In Physics, recommendations must also be supplemented by an examination in the text-book work, at the University.

6. In Drawing recommendations must be supplemented by an exercise in drawing, at the University.

7. In all History subjects (completed since 1898) recommendations must be supplemented by duly certified note-books.

8. In English Literature recommendations must be supplemented by an oral examination, at the University.

9. In French and German, after 1899, recommendations must be supplemented by the exercise books in Prose Composition duly certified by the teacher.

10. In Latin Prose Composition recommendations must be supplemented by a special statement from the Latin teacher, giving in detail the time devoted to the subject, books used, amount translated, proficiency attained, etc.

11. Recommended graduates of the San Jose, Los Angeles, and Chico State Normal Schools may be admitted, without examination, except in English Composition, to provisional undergraduate standing, such standing subject to revision after one year's attendance.

12. Credits secured by passing the regular entrance examinations of other institutions of recognized collegiate rank, may be offered in place of recommendations from approved schools, provided a sufficient number have been passed to secure admission in regular standing to the institution from which the credits are offered. Partial credits will not be considered.

Exemptions from entrance examinations are granted on satisfactory recommendations as a matter of mutual convenience, and to save applicants from unnecessary worry; at the same time it is

not considered that the requirement of an examination is necessarily a hardship, and the University will not hesitate to prefer examinations in all cases where there is doubt either as to the quantity or quality of the work offered.

Recommendations will be considered at any time of the year, but since, in general, no one can be assured of admission to the University without examination in one or more subjects, it is important that certificates be forwarded as early as possible.

Blanks for admission on recommendation may be obtained from the Registrar.

IV. Admission as Special Students.

Persons at least twenty-one years of age, who do not fulfill the regular entrance requirements, but who offer an academic training substantially equivalent, or whose incomplete academic training has been duly supplemented by experience in teaching or other practical preparation, or by special attainment in some particular line, may be admitted as special students under such conditions as shall be deemed wise in each individual case.

Special students are subject to the same University regulations as regular undergraduates, and they may become candidates for graduation upon fulfilling all University requirements, including those for entrance.

A failure on the part of any special student to maintain a good standing in the studies to which he is admitted will at once sever his connection with the University; and a special student suspended for failure in University work may be readmitted only upon attaining regular undergraduate standing.

Blank applications for admission as special students may be obtained from the Registrar.

V. Admission to Advanced Standing.

Students from other institutions of recognized collegiate rank, who present letters of honorable dismissal, may be admitted to such standing and upon such terms as the Faculty may deem equitable, but no such student can be given more than three years' advanced credit (ninety hours toward graduation). Every candidate is required to present, along with a catalogue of the institution in which he has studied, a full statement, duly certified, of the studies he has completed, including studies passed or credited at entrance. Blank applications for admission to Advanced Standing may be obtained from the Registrar.

All applications for advanced standing on the basis of work done before entering the University must be filed within one

year after matriculation; and such applications will not be received at a later date.

VI. Admission to Graduate Standing.

Graduates of this University, and of other institutions of recognized collegiate rank, may be admitted to graduate standing in the University upon presentation of diplomas or equivalent credentials. They may become candidates for advanced degrees upon fulfilling the conditions prescribed by the Faculty. In case they become candidates for the baccalaureate degree, the question of hours required for graduation may be waived and the degree conferred on the satisfactory completion of at least thirty hours of University work and the fulfillment of all major and minor requirements. Graduate students not candidates for any degree, may be admitted, upon the approval of the major professor, to such work as their previous training seems to warrant.

GRADUATION.

Candidates may present themselves for graduation in January, May, and September.

No degree will be granted to any person who has not spent at least one year in resident study at the University. No honorary degrees are given.

I. First Degree.

The degree of *Bachelor of Arts* (A. B.) is granted to students who have satisfactorily completed the equivalent of four years' work of fifteen hours of lecture or recitation weekly, or a total of one hundred and twenty hours, and who have also satisfied the requirements in major and minor subjects.

Each student selects as his major subject or specialty the work of some one professor. This professor has the authority to require the completion of this *major* subject, and also of such *minor* subjects in other departments as he may consider necessary or desirable collateral work. Such major and minor requirements taken together will not exceed forty hours of University work, or one-third of the student's time for the four years of undergraduate work.

With these exceptions, all the undergraduate work in all departments is elective. The student may freely choose for such elective work any subject taught in the University, which his previous studies have prepared him to undertake.

The professor in charge of the major subject of any student is expected to act as adviser to the student in educational matters, and the recommendation of such professor is necessary to graduation.

II. Advanced Degrees.

Every applicant for an advanced degree must file at the Registrar's office, not later than the beginning of the semester preceding that in which the degree is sought, a formal application including a statement of the proposed course of study. This application must be approved by the major professor, and upon acceptance by the Faculty the applicant is admitted to candidacy for such advanced degree. It is advisable that such application be made as early as possible in the student's course. Where a thesis is required it shall be upon a subject approved by the major professor, and, if for the doctor's degree, shall be presented in its final form at least six weeks before the close of the semester in which the degree is sought. Accepted theses, for the master's degree, shall be bound in a uniform style and deposited in the University Library. No advanced degree will be conferred except upon the recommendation of the appropriate Faculty committee.

Master of Arts.

The degree of *Master of Arts* (A. M.) is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion, in residence, of one year of graduate work, beyond the baccalaureate requirements of the department in which the degree is sought, and on the presentation of an approved thesis, or the passing of a satisfactory examination, or both. At least two-thirds of the year's work required of the candidate is to be devoted to the major study. When work of an undergraduate character is required by any department, the candidate must show more than ordinary excellence therein. Work done in the University outside of the requirements for the degree must be registered, but will not be taken into account in connection with the degree.

Engineer.

In the departments of applied science the professional degree of *Engineer* is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion, in residence, of one year of professional study beyond the baccalaureate requirements of the department in which the degree is sought, and on the presentation of an approved thesis, showing ability to do independent work.

Doctor of Philosophy.

The degree of *Doctor of Philosophy* (Ph. D.) is conferred upon graduates of this University, and upon others who have had an equivalent training elsewhere, on the satisfactory completion of at least three years of graduate work, beyond the baccalaureate requirements of the department in which the degree is sought, under the following conditions:

1. The degree is given only on the ground of advanced scholarship and the ability to do independent work in some special line, and not for merely faithful study for a prescribed time or course, nor for miscellaneous study. Three years represent the minimum time in which the degree can be obtained and often a longer period of study will be necessary.

2. Graduate work done elsewhere may be accepted in place of resident study in this University; but in no case will private study without sufficient guidance, or pursued at a distance from libraries or laboratories or other necessary facilities, be accepted as an equivalent; and no degree will be granted to any person who has not spent at least the last year of such study in residence at this University.

3. The course of study shall embrace one major subject and one or two minors in related departments. The minor subject or subjects shall represent approximately one-third of the course of study; except that such minor subjects may be waived, on the recommendation of the department in which the major subject is taken and with the approval of the Faculty, whenever the general preparation or special needs of the candidate make such a course seem desirable.

4. The candidate must present a thesis of such a character as shall display power of original and independent investigation and constitute an actual contribution to knowledge. He must guarantee the printing of the thesis, in a form approved by the Faculty, within one year after the degree is conferred, and must deposit one hundred copies in the University Library.

5. The candidate must sustain such final examinations in major and minor subjects as may be prescribed by the departments in which studies are taken, and also shall submit to such tests or examinations as may be required by the special committee of the Faculty. This special committee, jointly with the department in which the major work is taken, shall be responsible for the fitness of the candidate.

6. In addition to the foregoing conditions prescribed by the University, the special committee of the Faculty will, in general,

insist upon the following conditions: (*a*) That all candidates be required to show a reading knowledge of French and German; (*b*) That, whenever practicable, the departmental examinations, in both major and minor subjects, be written, the papers of candidates to be submitted to the special committee prior to the day fixed for the final test before that committee; (*c*) That examinations in minors be held not earlier than the second semester before the time named for conferring the degree.

UNIVERSITY REGULATIONS.

Registration.

On the appointed Registration Days, in September and January, each student must obtain a certificate of registration *in person*, at the Registrar's office. On registering, the student receives a card for selection of studies for the semester. This card must be filled out, with the approval of the major professor, and returned to the Registrar within ten days. After this date no changes can be made during the semester except by petition. Study cards not filed within ten days after the beginning of the semester must be approved by all the instructors under whom work is to be taken. Matriculated students may register after the appointed Registration Days only upon payment of an additional fee of two dollars.

Enrollment in Classes.

A student desiring to enter any class must present his certificate of registration to the instructor for enrollment at the beginning of each semester. Whether the student is qualified for enrollment in any particular class is a question to be decided by the instructor in charge. In general, the pre-requisites for taking any given course are noted under "Courses of Instruction."

Change of Studies.

A student desiring to drop a subject once taken up, or to take up a new subject after the study card has been filed, must present to the Committee on Registration of Studies a petition for such change, approved by the major professor and by the instructors whose subjects are to be taken or dropped. In general, petitions so approved, if they do not give the student too many hours or too few hours, and if presented within one month after the beginning of the semester, are granted without further action. If presented at a later time they will be granted only for extraordinary reasons.

Change of Major Subject.

Petitions to change the major subject will be granted when approved by the professors in charge of both the old and the new subjects, the student being held to all the requirements of the new major subject. In general, the major subject may be changed at the end of the first year, and in some cases later, without appreciable loss of time to the student.

Amount of Work.

Fifteen hours per week of recitations or lectures, or their equivalent in laboratory work, constitute an average semester's work. Students may register for as few as *thirteen* or as many as *eighteen* hours, except that where conditions or failures have been incurred in the preceding semester not more than *fifteen* hours may be registered unless by special permission of the Committee on Registration. Permission to register for less than *thirteen* hours may be granted for special reasons. Petitions for irregular hours should be presented at the beginning of the semester.

Every hour for which credit is given is understood to represent approximately, for the average student, three hours of actual work per week, through one semester. Thus, in lecture or recitation work, one hour is allotted to the lecture or recitation and two hours for preparation or subsequent reading and study on the part of the student. Where the time is wholly occupied with drawing, field, or laboratory work, three full hours per week through one semester are expected of the student for each hour that counts toward graduation. Where the drawing, field, or laboratory work is supplemented by systematic outside reading or experiment under the direction of the instructor, such a reduction may be made in actual drawing, field, or laboratory time as seems just to the department concerned.

Conditions and Failures.

A student conditioned in any subject may arrange with the instructor concerned for such supplementary examinations or study as will make good the deficiency; but such deficiency must be removed within one year after the condition is incurred, otherwise the condition will be considered a failure. Work reported as incomplete must be made up within one semester. A student failing in any subject cannot receive credit for the portion in which the failure is incurred, until the subject has been re-registered and taken over again in class. A condition or failure, or withdrawal from class without permission of the Committee on

Registration of Studies, limits the student to *fifteen* hours the semester following.

Entrance Conditions.

Students admitted to partial standing may make up deficiencies by (1) completing before graduation, in addition to the one hundred and twenty hours required for graduation, five hours of University work for each entrance credit lacking (except in the case of English Composition, which must be passed on examination); or (2) by passing entrance examinations in the additional subjects necessary, provided such examinations are passed within one year after admission to the University.

From Special to Regular Standing.

Special students may be entered in regular standing and become candidates for graduation, on passing examinations in the required number of subjects. In place of entrance examinations University work to the amount of five hours for each entrance credit may be offered in University subjects which are also included in the entrance group.

Advanced Standing on Entrance Subjects.

Credit toward graduation may be given for entrance subjects in excess of the number required for admission, on the recommendation of the departments concerned. But such advanced standing will be given only for entrance subjects which are also University subjects, and only in cases where the subject for which advanced credit is asked has been successfully continued in the University within two years after matriculation, and where the student's general University record is deemed proof of superior scholarship. Applications for such advanced standing must be made within two years after matriculation.

Advanced Standing for Special Courses.

Matriculated students pursuing courses of study outside of regular University classes, during any summer vacation or while absent from the University for one or more semesters, may receive credit toward graduation for such work only upon the following conditions:

1. Such proposed work must be duly outlined in advance by the student and must be approved by the instructor whose University courses it most nearly follows, by the student's major professor, and by the Committee on Advanced Standing.

2. The student shall meet such tests or examinations as may be required by the department responsible for the work.

3. For such special work undertaken during any semester's absence the registration fee, payable to the University, will be the same as would be required for regular registration in the University. For such work undertaken during any summer vacation the registration fee will be five dollars, payable at the time of registration.

4. Not more than six hours may be credited toward graduation for any such special work completed during any summer vacation or during any semester's absence from the University.

Leave of Absence.

A student desiring to leave the University for a brief time should apply to the Committee on Registration. If leave of absence is desired on account of sickness the petition must be indorsed by the Professor of Hygiene. A leave of absence is merely a justification of the absence and not a relief from the work that has been missed. Petitions for absence over one or more semesters should also be presented to this committee.

EXPENSES OF THE STUDENT.

Tuition in all departments of the University is free. In 1899–1900 registration fees will be charged as follows, payable on registration: Regular undergraduate students, *ten dollars* per semester; special and partial students, *fifteen dollars* per semester. In addition, students in laboratory courses pay for the materials which they use. The deposits required in advance are different for the different courses, ranging from *two* to *twenty-five dollars* per semester.

The cost of living in Roble Hall, including board, furnished rooms, light, heat, and attendance, averages about twenty-five dollars per month. Students furnish their own linen, blankets, towels, and napkins. Rooms in Encina Hall, similarly furnished, but without board, cost from $4.50 to $5.50 per month, with two in a room. There are a few single rooms at $7 per month. Students occupying a double room alone pay the full price of the room. Each double room is furnished with two single beds. Rooms may be reserved in advance by making a deposit of two dollars.

In Palo Alto and Mayfield, at an average distance of a mile and a half from the University, good rooms and board, in private houses, can be obtained at from eighteen to twenty-five dollars per month. Houses can also be rented for the use of clubs and societies. Special commutation tickets are issued by the Southern Pacific Company, and students living in towns on the line of

the railway, from San Francisco to San Jose, can easily go to and from the University daily. Omnibuses connect with all trains at Palo Alto. A careful list of available boarding places outside the Halls is compiled a week or ten days before the opening of the University year, and may be obtained at the Registrar's office. New students will find no difficulty in securing accommodations after their arrival.

The University Inn, located just east of the quadrangle, has dining accommodations for about three hundred students. It is managed wholly on the order plan, and the cost of board, during the present year, for the majority of students, has ranged from $15 to $18 per month.

The expenses of the student, exclusive of clothing and railway fares, need not exceed $225 to $300 per year.

SELF-SUPPORT OF STUDENTS.

No provision has been made for affording direct pecuniary assistance to students, but a considerable number manage in one way or another to earn the whole or a part of their expenses while attending the University. Such opportunities occur in the line of office and laboratory assistance, personal services of numerous kinds, and the management of various student enterprises.

The Faculty Committee on Student Aid register without charge all students who apply for employment, and supply employers with student labor as demanded. In general, the demand and supply are very nearly equal, but the Committee desire to call the attention of new students who intend to earn the whole or a part of their living, to the following results of their experience:

1. There is a constant *over supply* of those wishing to do teaching, clerical labor, typewriting, and stenography. None but those having superior qualifications and experience are likely to secure employment the first year.

2. There is constant demand for students (both men and women) who can do domestic labor of any kind, such as waiting on table, washing dishes, general housework, house cleaning, gardening, etc. The money value of such labor is usually reckoned at fifteen cents per hour.

3. Students who can do any kind of domestic or manual labor *well*, and who have thoroughly good health, can earn from one-half to two-thirds of their expenses, and by taking five years to graduate, they may earn the whole. But the Committee strongly

advise that no student should come to the University without resources sufficient for the expenses of one semester. There have been several instances of failure in studies and serious ill-health on the part of those who have come without resources.

4. The University curriculum is adapted to those who have control of their entire time for study. No student who must earn his living, therefore, should undertake to graduate in four years.

5. No student should come expecting to earn money, who can do nothing well; skill is absolutely essential, as the competition for labor is quite as severe in the college community as elsewhere.

The *Students' Guild* is a regularly incorporated association for mutual assistance in cases of sickness or other unusual emergency. Its resources are mainly the voluntary contributions of students and faculty, fifty cents per semester being the ordinary subscription. The Guild employs a trained nurse who is constantly in attendance at the University.

Courses of Instruction.

[*Courses for 1898–99, with Announcements for 1899–1900.*]

CLASSICAL LANGUAGES.

Professors Pease, Murray, Miller, and Fairclough, and Instructors Elmore and Howard.

The undergraduate courses in Greek and Latin are intended to give the student careful training in the languages themselves, an acquaintance with the representative authors of classical literature, and some insight into the life, culture, and civilization of ancient Greece and Rome. The instruction in the lower courses is given chiefly by means of recitations; as the student advances these are supplemented by lectures, and he is encouraged to make more and more use of the library, and to become familiar with the standard books of reference.

The graduate courses are intended primarily for those who are looking forward to teaching as their profession. They are intended to give a broader and more comprehensive knowledge of the classical languages and literature than is afforded in the undergraduate courses, and to offer training in the methods of philological criticism and research. The work centers in the Seminaries, each composed of a director and such graduate students as shall satisfy the director of their fitness for the work. Some author or department of literature is chosen for the year's study, and the students are expected to read extensively in the literature, usually with some particular end in view. At the weekly meetings of each Seminary the students present the results of their study in the form of interpretations, reports, reviews, and original papers. An essential part of the graduate course is the series of lectures by the several professors on topics connected with the work of the Seminaries, or on subjects of importance to the advanced student.

The student who elects Greek or Latin, or both, as his major subject is expected to choose one of the professors in this department as his major professor, and to look to him for direction in

his major and minor subjects and for advice in educational matters.

The degree of Bachelor of Arts in Classical Philology will be granted to students who have pursued both Greek and Latin to an extent which shall meet the approval of the classical faculty.

GREEK.

UNDERGRADUATE COURSES.

1. Elementary.—Grammar; translation of easy prose; Greek composition. After the essential grammatical forms have been mastered, passages of continuous prose are taken up for translation and, as soon as is practicable, the Anabasis. The student is made familiar with the ordinary forms of syntax, and exercises in writing Greek are regularly introduced. This course does not count as a part of the major work for students in Greek.

5 hrs., both semesters. (FAIRCLOUGH.)

2. Herodotus and Homer.—Selections from Herodotus and the Odyssey. Course 2 is open to those who have offered subject 21 on entrance, or who have completed course 1 in the University.

3 hrs., 1st semester. (MURRAY.)

3. Plato and Lysias.—A continuation of course 2. The Apology and Crito, and selections from Lysias.

3 hrs., 2d semester. (MURRAY.)

4. Prose Composition and Sight Translation.—Simple Prose is taken up for sight reading, and the exercises are based upon the text read. Course 4 is required of all students in courses 2 and 3 who are making Greek their major study.

2 hrs., both semesters. (MURRAY.)

5. Homer.—A critical study of the Iliad, with discussions and papers on Homeric topics. Open to those who have completed courses 2 and 3, or an equivalent.

3 hrs., 1st semester. (MURRAY.)

6. Oratory.—Jebb's Selections from the Attic Orators, with lectures. A continuation of course 5.

3 hrs., 2d semester. (MURRAY.)

7. Prose Composition and Sight Translation.—Selections for translation will be made from the historical and philosophical writers. A variety of practical exercises in Greek composition will be prepared according to the needs of the class. Open only

to those who have completed course 4, or an equivalent, but required of major students before graduation.

2 hrs., both semesters. (MILLER.)

8. Bucolic Poetry.—The Idylls of Theocritus and the Eclogues of Vergil are read and interpreted. The course includes also Bion and Moschus. Lectures and recitations. [Course 8 will not be given in 1899–1900.]

2 hrs., both semesters. (MILLER.)

9. Classical Mythology.—A study of the Greek and Roman myths by means of ancient sculptures and vase-paintings. Lectures and recitations. [Course 9 will not be given in 1899–1900.]

2 hrs., 1st semester. (MILLER.)

10. History of Greek Sculpture.—From the earliest times down to the time of Alexander. Lectures and recitations. [Course 10 will not be given in 1899–1900.]

2 hrs., 2d semester. (MILLER.)

11. Greek Tragedy.—The Prometheus of Aeschylus, the Antigone and Electra of Sophocles, and the Hippolytus and Iphigeneia Taurica of Euripides are read and interpreted. [Course 11 alternates with courses 12 and 13, and will not be given in 1899–1900.

3 hrs., both semesters. (MURRAY.)

12. Plato and Demosthenes.—The Phaedo and the De Corona will be read and interpreted.

3 hrs., 1st semester. (MILLER.)

13. Thucydides.—Books VI and VII, the Sicilian Expedition.

3 hrs., 2d semester. (MILLER.)

GRADUATE COURSES.

14. The Greek Seminary.—In 1899–1900 the Seminary will be occupied with the study of Greek Comedy. The latter half of the Frogs of Aristophanes will be taken up for critical interpretation. Students should provide themselves *in advance* with complete texts of Aristophanes and the tragedians (those in the Teubner Series are recommended), and with one or more of the following special editions of the Frogs: that by von Velsen (Leipzig, Teubner, 1881. This book is indispensable); Kock (Berlin, Weidmann, 1881); van Leeuwen (Leyden, 1896); Blaydes (Halle, 1889). Of these the edition by Kock offers the most satisfactory commentary; that by von Velsen is critical only. All of these books may readily be obtained, and at no great expense, of

Lemcke & Buechner, 812 Broadway, New York, or of any importer. The Seminary is under the directorship of Professor Murray, assisted by Professor Fairclough. All those who expect to join the Seminary are requested to communicate with the director before the end of the summer.

2 hrs., both semesters. (Murray, Fairclough.)

15. Greek Comedy.—Lectures on the origin and development of comedy with especial reference to Aristophanes. This course is offered primarily for Seminary students, and is a necessary part of the Seminary work.

1 hr., both semesters. (Murray.)

16. Lyric Poetry.—Lectures on the development of Greek and Latin lyric poetry, accompanied by readings and interpretation on the part of the instructor. See Latin 23. Undergraduates may take this course by permission of the instructor. [Course 16 will not be given in 1899–1900.]

2 hrs., 1st semester. (Fairclough.)

17. Xenophon.—The critical study and reading of the first four books of the Cyropaedia, together with the discussion of its problems, literary, educational, philosophical, and military. This course is intended especially for teachers and such students as are planning to teach Xenophon. Students electing this course should provide themselves in advance with the second edition of Hug (Teubner, Leipzig). *2 hrs., both semesters.* (Miller.)

18. The Greek Club.—Beginning with September, 1899, such of the instructors and advanced classical students as may choose to do so will meet one evening every other week for the rapid reading of some Greek author, for discussion of topics bearing upon classical studies, and for social intercourse.

SPECIAL LECTURES.

Throughout the year Professor Murray will give weekly lectures on Greek Epic and Dramatic Poetry. These lectures are intended for general literary students and do not presuppose a knowledge of Greek; they will not count as a part of the major work for students in Greek.

19. The Greek Epic. *1 hr., 1st semester.* (Murray.)

20. Greek Tragedy. *1 hr., 2d semester.* (Murray.)

SANSKRIT.

1. Elementary.—Grammar; lectures on the Sanskrit language and literature and the principles of comparative philology. The mastery of the forms is followed by reading from Lanman's Sanskrit Reader and drill on comparative forms.

2 hrs., both semesters. (MILLER.)

2. Sanskrit Drama.—The entire Çakuntala of Kalidasa and one act of the Mricchikatika of King Sudraka was read and interpreted. [Course 2 will not be given in 1899–1900. (MILLER.)

LATIN.

UNDERGRADUATE COURSES.

1. Cicero and Vergil.—Cicero, five orations; Vergil, six books of the Æneid; exercises in Latin composition and sight reading. This course is planned for those who have passed in entrance subject 20*a*. It is regarded as preparatory to the work required of major students in Latin.

5 hrs., both semesters. (HOWARD.)

2. Cicero, Livy, and Terence.—Cicero, De Senectute; Livy, books XXI–II; Terence, Andria. Open to students who have passed in course 1, or in subject 20*b* of the entrance requirements. Two sections. In section I, intended for students whose major is Latin (or Greek), it is proposed to give the thorough drill necessary as a basis for future classical study in the University. In section II, intended for students whose major study is not the classics, the chief aim will be, after a hurried grammatical review, to gain as great facility as possible in reading Latin.

3 hrs., both semesters. (PEASE, ELMORE.)

3. Translation at Sight, and Latin Composition.—This course is open to students who are taking course 2, and is required of major students in Latin. Training in the rapid reading of Cicero's De Amicitia, Livy, book I, and Nepos will be given one hour a week; the other hour will be devoted to Latin composition in connection with the Cicero and Livy of course 2, and to the study of the private life of the Romans in connection with the Terence.

2 hrs., both semesters. (ELMORE, HOWARD.)

4. Horace and Tacitus.—Selections from the Satires, Odes, and Epistles of Horace, and from the works of Tacitus. This course, open to those who have passed in course 2, will aim at giving a comprehensive view of these authors and their place in the liter-

ature. Attention will be directed especially to the style and subject matter, and to the literary history of the times.

3 hrs., both semesters. (Miller, Fairclough.)

5. Translation at Sight and Latin Composition.—This is open to students who have taken course 3. One hour a week the class will read selections from Cicero, Tacitus, and Pliny's Letters. Special effort will be made to get at the Roman point of view, and to grasp the meaning in the order of the Latin. The exercises for translation into Latin will be prepared to suit the needs of the class. Conversation and the writing of epistles in Latin will be made a feature of the course.

2 hrs., both semesters. (Fairclough.)

6. Latin Comedy.—In this course the Menaechmi of Plautus will be studied with particular reference to the early forms, constructions, and metres; and that followed by the more rapid reading of the Captivi and Rudens of Plautus, and the Andria and Phormio of Terence. Considerable attention will be paid to a comparison between ancient and modern comedy, the development of Latin comedy, the early theatre, and the method of presenting a play. *3 hrs., 1st semester.* (Fairclough.)

7. The Letters of Cicero.—The aim will be to get a view of Cicero and his times from the original sources, to see some of the causes for the breaking down of the Republic, and to become familiar with official procedure in the judicial and legislative bodies. Special attention will be paid to the familiar style of the letters. *3 hrs., 2d semester.* (Miller.)

8. Catullus, Tibullus, and Propertius.—Selections from these authors will be studied, largely with reference to the thought and artistic form, and compared with similar poems of other writers. Other selections will be read in translation in order to gain a comprehensive view of their works as a whole. [Course 8, alternating with course 10, will not be given in 1899–1900.]

2 hrs., 1st semester. (Pease.)

9. Lucretius.—Selections from the De Rerum Natura will be read in Latin and the rest in translation, attention being paid to the philosophic thought and its poetic treatment. [Course 9, alternating with course 11, will not be given in 1899–1900.]

2 hrs., 1st semester. (Fairclough.)

10. Juvenal.—A study of the Satires of Juvenal with special

reference to the social conditions of that time. Supplementary reading will be assigned in various writers on that period.

2 hrs., 2d semester. (PEASE.)

11. **Quintilian.**—In connection with the study of the subject matter of books X and XII, considerable attention will be paid to literary criticism and to the history of Roman literature.

2 hrs., 2d semester. (MILLER.)

12. **Bucolic Poetry.**—A study of Vergil in connection with his Greek models. [See Greek 8.]

2 hrs., 2d semester. (MILLER.)

13. **Roman Law.**—The work will be based upon the Commentaries of Gaius. The course will also treat of the sources of Roman law, of the process of reducing the law to a code, and of the various collections. Course 13 is intended especially for students in law. [Not given in 1899–1900.]

2 hrs., 2d semester. (FAIRCLOUGH.)

14. **Teachers' Course.**—This is a course of lectures and recitations intended for those who expect to engage at once in preparatory teaching. The lectures will treat of the aims and methods of teaching preparatory Latin, the books and other helps serviceable to teachers, and such practical subjects as pronunciation, sequence of tenses, indirect discourse, and the like. There will also be practice in writing Latin and in teaching. Portions of the authors suitable for preparatory work will be read in class, and the members will serve in turn as teachers under the supervision of the instructor. Opportunity will be given to visit preparatory classes in the vicinity, and a report will be presented by each member. [This course, alternating with course 15, will not be given in 1899–1900.]

2 hrs., 2d semester. (PEASE.)

15. **Monuments of Ancient Rome.**—A rapid survey of the architectural growth and topography of the ancient city, including an account of the walls, streets, aqueducts, bridges, fora, temples, basilicas, theatres, amphitheatres, circuses, baths, arches, palaces, tenements, shops, columns, tombs, etc. All the references of importance in Latin and Greek literature throwing light upon the monuments will be presented to the class by the different members. Open to third and fourth year students and to graduates.

2 hrs., 1st semester. (PEASE.)

16. **Classical Mythology.**—[See under Greek 9.]

17. Latin Composition.—A course in the study of style, with practice in translating and writing Latin at dictation. Open to third and fourth year students and to graduates.

2 hrs., both semesters. (PEASE.)

18. Thesis.—Advanced students who desire some training in the methods of original investigation, may, by permission, register for one or two hours of thesis work. Credit for such work will be granted on the completion of a satisfactory thesis in accordance with the requirements of the department. For certain subjects, such for instance as the literary history of a period, an examination, supplemented by a carefully prepared bibliography and syllabus, may be substituted for the thesis.

GRADUATE COURSES.

19. Latin Seminary.—In 1899–1900 the Seminary will be occupied with the study of Roman Satire. The meetings will be devoted to the interpretation of Horace by the members in turn, and to the presentation of papers containing the results of their special investigations. Students should provide themselves in advance with Baehren's Fragmenta Poetarum Romanorum (Leipzig, 1886); Keller & Holder's Horace (Editio Minor, Leipzig, 1878); The Satires of Petronius, Varro, and Seneca, by Buecheler Berlin, 1895); and the Jahn-Buecheler Edition of Persius, Juvenal, and Sulpicia (Berlin, 1893).

2 hrs., both semesters. (PEASE.)

20. Satire. Lectures on the development of Latin Satire.

1 hr., 1st semester. (PEASE.)

21. Satirists.—The rapid reading of the Latin satirists from Horace down to Juvenal. *2 hrs., 1st semester.* (MILLER.)

22. Latin Grammar.—A course of lectures on the cases.

1 hr., 2d semester. (PEASE.)

23. Lyric Poetry.—Lectures on the development of Greek and Latin lyric poetry, accompanied by readings and interpretation on the part of the instructor. [See Greek 16.]

2 hrs., 1st semester. (FAIRCLOUGH.)

24. A Journal Club, composed of the instructors and graduate students in the Classical Languages, will meet weekly for reports on articles of interest in the current periodicals and on new books that appear.

GERMANIC LANGUAGES.

Professors Goebel and Griffin, Assistant Professor Rendtorff, and Instructor Schmidt.

The aim of the elementary classes in this Department is to give the student a thorough knowledge of German grammar and to enable him to acquire facility in reading German. The more advanced classes take up the study of the poets and writers of the classical period, and it is intended to offer, by the reading and interpretation of these authors, an equivalent for the study of the ancient languages to those not taking Latin or Greek in their University course. The general responsibility for the work of the first and second years rests with Professor Griffin; that for the work in Literature and Philology, with Professor Goebel.

1. Elementary.—German Grammar and German Reader; German Composition; Novelletten; translation of easy prose and poetry. Course 1 is intended for those beginning the study of the language. The number of sections is limited to five: three five-hour sections and two three-hour sections. Students who have had training in Latin, and students who have some knowledge of German, but not sufficient to enable them to pass in entrance subject 19*a*, will be admitted to the three-hour sections.

3 and 5 hrs., both semesters.

(Griffin, Rendtorff, Schmidt.)

2. Second-Year German.—Maria Stuart and Goethe's Prosa. [In 1899–1900 Lessing's Minna von Barnhelm, Goethe's Egmont, and Schiller's Wilhelm Tell.] Advanced grammar and composition, translation at sight. Open to students who have completed course 1 or its equivalent, or who have received credit for entrance subject 19*a*. *3 hrs., both semesters.*

(Griffin, Rendtorff, Schmidt.)

3. Scientific German.—The work in this course consists in the translation of monographs by such leading German scientists as Cohn, Müller, Weissmann, and Helmholtz. No student is advised to take this course who has not had at least two years of thorough preparation in literary German.

2 hrs., 1st semester. (Griffin.)

4. Historical German.—This course consists of the rapid translation of modern historical and economic German. Essays published in current numbers of the Deutsche Rundschau and other

leading German periodicals are studied. No student is advised to register for course 4 who has not had at least two years of literary German. *2 hrs., 2d semester.* (GRIFFIN.)

5. **Third-Year German.**—*a*. Goethe's Hermann und Dorothea, in connection with A. W. Schlegel's essay on Hermann und Dorothea. [In 1899–1900 Schiller's Wallenstein will be studied.] *b*. Schiller's Braut von Messina. [In 1899–1900 Goethe's Iphigenie will be read.] During both semesters one hour of this course will be devoted to the reading of literary, scientific, and historical German prose. *3 hrs., both semesters.* (RENDTORFF.)

5*a*. **Classical German Drama.**—Lessing's Nathan der Weise and Schiller's Jungfrau von Orleans. [This course will not be given in 1899–1900.] *2 hrs., both semesters.* (GRIFFIN.)

6. **Modern German Novels.**—Cursory reading of standard novels by Scheffel, Freytag, Gottfried Keller, etc. Open to students who have completed course 2.

2 hrs., both semesters. (RENDTORFF.)

7. **Advanced German Composition.**—Translation of graded exercises covering the most important parts of German Syntax. Writing of essays in German. Open to students who have completed course 2, or its equivalent.

1 hr., both semesters. (RENDTORFF.)

8. **Deutsche Syntax.**—Aufsätze und Stilübungen. Open to students who have completed course 7, or its equivalent.

1 hr., both semesters. (RENDTORFF.)

9. **Goethe.**—Goethe's Faust, First and Second Parts. Interpretation, with lectures on the development of the Faust-legend, the history of Goethe's Faust, and its philosophical and ethical ideas. [In 1899–1900 Goethe's and Schiller's lyrical and philosophical poems will be studied, with lectures on the lives of both poets.]

2 hrs., both semesters. (GOEBEL.)

10. **History of German Literature.**—Lectures on the history of German literature from the earliest times to the Reformation, with parallel readings from Max Müller's German Classics. [In 1899–1900 lectures on the history of German literature in the Eighteenth Century.] *2 hrs., both semesters.* (GOEBEL.)

11. **Poetics.**—Lectures on the psychology and æsthetics of poetry as the basis for literary criticism. Comparative study of the principal theories of lyric, epic, and dramatic poetry from Aris-

totle to the present time. This course is open to all students of literature. [This course will not be given in 1899–1900.]

2 hrs., 1st semester. (GOEBEL.)

12. Comparative Grammar of the German and English Languages.—Lectures on the relation in phonology, declension, conjugation, word formation, and syntax, between German and English. This course, while chiefly intended for those who expect to teach German and English, is open to all students of both languages. *2 hrs., both semesters.* (GOEBEL.)

GRADUATE COURSES.

The graduate courses in German, for which a thorough linguistic preparation is required, are intended especially for students who will make the teaching of German their later profession. Careful attention is given to the linguistic as well as to the literary training of the student, aiming at a comprehensive insight into the historical growth of the Germanic languages and literatures. The scientific methods of original and critical research are taught and practiced in the seminary. Such students as have given satisfactory proof of their ability as independent investigators will be admitted to the degree of Ph. D., after having presented a thesis containing a contribution to science, and having fulfilled the other requirements prescribed by the University.

The Hildebrand Library.—The purchase by the University of the extensive library of the late Professor Hildebrand of Leipzig offers, on account of the rare completeness of the collection in all branches of Germanic philology and literature, extraordinary opportunities for graduate work in German.

13. Middle-High German.—Middle-High German Grammar, with readings from Weinhold's Lesebuch.

2 hrs., 1st semester. (GOEBEL.)

14. Nibelungenlied.—Interpretation, with lectures on the history of the Nibelungen saga. [In 1899–1900 the Gudrun will be interpreted.] *2 hrs., 2d semester.* (GOEBEL.)

15. Old-High German and Old Saxon.—Old-High German and Old Saxon Grammar, with readings from Braune's Lesebuch.

2 hrs., 1st semester. (GOEBEL.)

16. Heliand.—Interpretation and lectures.

2 hrs., 2d semester. (GOEBEL.)

17. Old Norse.—Old Norse Grammar, with readings of Old-Norse prose texts. (Holthausen's Lesebuch.)

2 hrs., 1st semester. (Goebel.)

18. Edda.—Interpretation of the heroic lays of the older Edda in connection with the course on the Nibelungenlied. [Courses 17 and 18 will not be given in 1899–1900.]

2 hrs., 2d semester. (Goebel.)

19. Gothic.—Gothic Grammar and interpretation of select passages from Wulfila. *2 hrs., 2d semester.* (Goebel.)

20. Comparative German Grammar.—Lectures on the comparative grammar of the Old-Germanic dialects.

2 hrs., 2d semester. (Goebel.)

21. German Seminary.—In 1898–99 the work of the Seminary consisted of the study of the writers known as Das Junge Deutschland, and of their influence on German literature, life, and politics of the present century. [In 1899–1900 a special study will be made of Herder and his influence on Goethe.]

2 hrs., both semesters. (Goebel.)

ROMANIC LANGUAGES.

Professor Matzke, Assistant Professors Davidson and Johnston, and Instructors Wright and Lincoln.

1. Elementary French.—Whitney's Practical French Grammar, Part I, with written exercises and systematic training in French pronunciation on the basis of Matzke's Primer of French Pronunciation; Grandgent's Materials for French Composition, Part I; Super's French Reader; Halévy, L'Abbé Constantin; Souvestre, Un Philosophe sous les toits. In this course the study of the language is taken up from the beginning. Stress is laid upon the acquisition, theoretical and practical, of a correct pronunciation, but no direct attempt is made to teach French conversation. The student's entire energy is concentrated upon the attainment of a full and accurate reading knowledge of the language, to which end grammar and composition are made systematically to contribute. Open to all, but students desiring to enter after the end of the second week will be admitted only upon special examination. *3 and 5 hrs., both semesters.*

(Johnston, Wright, Lincoln.)

2. **Modern French.**—George Sand, La Petite Fadette; Mérimée, Colomba; Fontaine, Fleurs de France; Hugo, Hernani; Whitney's Practical French Grammar, Part II. Open to students who have completed course 1, or who have received credit for entrance subject 18*a*. *3 hrs., both semesters.* (Davidson, Johnston.)

3. **Rapid Reading and Conversation.**—Augier, Le Gendre de Monsieur Poirier; Pailleron, Le Monde où l'on s'ennuie; De Banville, Gringoire; Meilhac et Halévy, L'Été de la Saint-Martin; Dumas, Les Trois Mousquetaires; Bowen's Modern French Lyrics. The course will be conducted entirely in French, the texts read being interpreted in French, and systematic instruction in French conversation will be given.

Courses 2 and 3 constitute the second year's work in French. Course 3 may be taken in connection with course 2, or subsequently to it, but it may not precede course 2.

2 hrs., both semesters. (Davidson.)

4. **Classical French.**—A study of the principal authors of the seventeenth century. The following texts will be read: Corneille, Le Cid, Cinna, Polyeute; Racine, Andromaque, Athalie; Molière, Les Précieuses Ridicules, Les Femmes Savantes, Le Bourgeois Gentilhomme, Le Misanthrope; La Fontaine, Fables; Boileau, L'Art Poétique.

Open to students who have completed courses 2 and 3, or their equivalent. *3 hrs., both semesters.* (Matzke.)

5. **History of French Literature from the Renaissance to the Romantic Movement.**—Lectures supplemented by reading and reports by the members of the class. Open to students who have completed courses 2 and 3, or their equivalent.

2 hrs., both semesters. (Matzke.)

6. **History of French Literature in the Nineteenth Century.**—Lectures, with reading of the principal authors and reports by the members of the class. Students should provide themselves with Pellissier, Le mouvement littéraire au XIXe siècle. (Paris, Hachette, 1889.) Open to students who have completed courses 4 or 5. *2 hrs., both semesters.* (Davidson.)

7. **Advanced Prose Composition.**—Meissner, An Introduction to French Prose Composition (London, Percival & Co., 1892). Open to students who have completed course 2, or its equivalent.

1 hr., both semesters. (Johnston.)

8. **Practical Exercises in French Composition and Conversation.**—The course will be conducted entirely in French. Open to students who have completed course 7, or its equivalent.

1 hr., both semesters. (DAVIDSON.)

9. **Introduction to Old French.**—Léon Gautier, La Chanson de Roland (Tours, Mame et Fils); Chrétien de Troyes, Yvain ou le Chevalier au Lyon (Halle, Niemeyer, 1891). Open to students who have completed course 4.

2 hrs., both semesters. (JOHNSTON.)

10. **Elementary Spanish.**—Manning's Practical Spanish Grammar; Matzke's First Spanish Readings; Tamayo y Baus, Un Drama Nuevo; Valdés, José. Open to students who have completed French course 1, or who have received credit for entrance subject 18*a*. *3 hrs., both semesters.* (DAVIDSON.)

11. **Classical Spanish.**—Cervantes, Don Quijote, Part I; Lope de Vega, La Estrella de Sevilla; Calderón, La Vida es Sueño; Moreto, El Desdén con el Desdén. Open to students who have completed course 10, or who have received credit for entrance subject 17. *2 hrs., both semesters.* (DAVIDSON.)

12. **Elementary Italian.**—Grandgent, Italian Grammar and Italian Composition; Bowen's First Italian Readings; De Amicis, Cuore; Manzoni, I Promessi Sposi. Open to students who have completed French course 1, or who have received credit for entrance subject 18*a*. *3 hrs., both semesters.* (JOHNSTON.)

GRADUATE COURSES.

Courses of instruction for graduate students in Romanic philology and literature lead to the degrees of Master of Arts and Doctor of Philosophy, and are planned for the benefit of specialists, particularly of such as are looking forward to becoming college teachers of the Romanic languages. Admission to regular standing in this department presupposes an undergraduate curriculum of study which has included Latin and French, and has afforded proficiency in at least one of the principal languages of the Romanic group (French, Spanish, or Italian). In addition to this, a good reading knowledge of German (for purposes of advanced study) is requisite. In connection with their special work, graduate students will be expected to take, under the advice of their professor, such undergraduate courses in the Romanic languages as may supplement their previous studies, and also such

graduate courses in related departments as will serve to broaden their general acquaintance with philology and literature.

13. **History of Old French Literature.**—Lectures on the history and development of French Literature from the beginning to the end of the fifteenth century. [Course 13 will not be given in 1899–1900.] *2 hrs., both semesters.* (MATZKE.)

14. **French Historical Grammar.**—Lectures on Old French Phonology and Morphology. Students should provide themselves with Schwan-Behrens, Grammatik des Altfranzösischen (3d edition, Reisland, Leipzig, 1898), Suchier, Altfranzösische Grammatik (Halle, Niemeyer, 1893), Körting, Lateinisch-Romanisches Wörterbuch (Schöningh, Paderborn, 1891). One hour every week will be given up to practical philological exercises based on Suchier's edition of Aucassin et Nicolete (Paderborn, 1889).
3 hrs., both semesters. (MATZKE.)

15. **Old French Texts.**—Translation of Old French Texts from Bartsch-Horning, La Langue et la Littérature française. [Course 15 will not be given in 1899–1900.]
2 hrs., 2d semester. (MATZKE.)

16. **Physiological Phonetics.**—Lectures. Students will need Sievers, Grundzüge der Phonetik (Leipzig, 1885); Beyer, Französische Phonetik (Cöthen, 1888); Paul Passy, Les Sons du Fransais (Paris). [Course 16 will not be given in 1899–1900.]
2 hrs., 1st semester. (MATZKE.)

17. **History of French Versification.**—Lectures. [Course 17 will not be given in 1899–1900.]
1 hr., both semesters. (DAVIDSON.)

18. **French Historical Syntax.**—Lectures. [Course 18 will not be given in 1899–1900.]
1 hr., both semesters. (JOHNSTON.)

19. **Old French Dialects.**—Lectures on the Phonology and Morphology of the Old French Dialects, with practical exercises on Old French Texts. [Couse 19 will not be given in 1899–1900.]
1 hr., both semesters. (MATZKE.)

20. **Old Provencal.**—Translation of Old Provençal texts from Appel, Provenzalische Chrestomathie (Leipzig, Reisland, 1895). [Course 20 will not be given in 1899–1900.]
2 hrs., both semesters. (MATZKE.)

21. Seminary.—In 1898–99 the Seminary was occupied with the study of the Anglonorman Dialect. The work was centered in the two unpublished poems of Simon de Freine, Le Roman de la Philosophie, and La Vie de Saint Georges. In 1899–1900 the oldest French texts will be studied upon the basis of Koschwitz, Les plus anciens Monuments de la Langue Française. (Heilbronn, 1886.) *2 hrs., both semesters.* (Matzke.)

ENGLISH LITERATURE AND LANGUAGE.

Professors Anderson, Flügel, Hudson, and Lathrop, Associate Professor Newcomer, Instructors Hardy and Pearson, and Assistant M. C. Smith.

The courses in English are divided into two classes: (1) courses which have a general value in affording discipline and culture; (2) courses which are designed for professional students of language and literature, and from which the hours required for graduation in English must be selected.

The objects of the general courses (3, 4, 5, 6, 8, 9) are stated in detail in the list of courses. These are not to be counted as a part of the major work required for graduation in English.

The courses in literature treat the subject from two points of view. First, the works studied are regarded as significant primarily because of their appeal to permanent interests of human nature, and as therefore deserving to be interpreted for their own sake. Secondly, the authors dealt with are considered in relation to the general movements of thought and feeling in their own and other ages, the history of literature being treated as a part of universal history.

Philology is conceived of in the courses devoted to it as the attempt to recreate the inner life of the past from the evidence afforded by language. It is believed that some study of language in this spirit is requisite for the complete training of a student of literature.

For graduation in English twenty-five hours of work in the department are required. Students who make English their major subject are expected to be able before graduation to read simple prose and verse in any three of the six languages: Greek, Latin, German, French, Italian, Spanish. (The facility required to pass in entrance subjects 17, 18*a*, 19*a*, 20, 21*a* is the standard.) They must have such a general knowledge of the history of

English literature as may be gained from course 10. Besides this, a student graduated in English is required to have a knowledge of the main facts of the history of the English language, such as may be gained from course 22.

UNDERGRADUATE COURSES.

3. **Introduction to English Prose.**—Courses 3 and 4 are intended to give students a feeling for the elements of good prose style by disciplining them in the exact study of words, in the analysis of structure, and in the application of the fundamental principles of rhetoric, and by training them in the rapid, accurate, and sympathetic reading of prose.

3 hrs., 1st semester. (NEWCOMER.)

4. **Introduction to English Prose.**—[Course 4 will not be given in 1899–1900.] *3 hrs., 2d semester.* (NEWCOMER.)

5. **Introduction to English Poetry.**—Course 5 is meant to acquaint students with the elements of poetic form, and to help them to an intelligent interest in poetry. [Text-book: Stedman's Victorian Anthology.] *3 hrs., 2d semester.* (NEWCOMER.)

6. **Elocution.**—An elementary course, including both the physical and the intellectual training requisite for effective reading and speaking. [Not to be given in 1899–1900.]

5 hrs., both semesters. (LATHROP.)

7. **Teachers' Course in English Composition.**—Open only to students who have shown more than average ability in the courses in composition. *2 hrs., 2d semester.* (HARDY.)

8. **English Composition.**—A course in narration, description, and exposition. Practice in taking notes and in making syllabi and abstracts forms a part of the course, the object of which is to develop habits of observation and accuracy of thought, as well as the power of expression. [Either the Standard Dictionary or Webster's International Dictionary.]

2 hrs., both semesters.

(LATHROP, HARDY, PEARSON, M. C. SMITH.)

9. **Argument.**—This course includes a study of the principles of argumentation, a study of models, and exercises in the preparation and presentation of arguments. The course is of a general nature and is not confined to argument of an oratorical type. Among the models studied are examples of argument from the

works of Lyell, Huxley, Darwin, Lubbock, Dalton, Cavendish; of Mill and Jevons; of Erskine, Curran, Choate; as well as from those of Webster, Chatham, Burke, Beecher, Bright. Open in general only to students who have passed in English 8.

2 hrs., both semesters. (Lathrop.)

10. The History of English Literature.—A course of lectures, giving a general view of the history of English literature. This course is intended primarily for advanced students of English, but is open to others who may satisfy the instructors of their fitness. *2 hrs., both semesters.*

(Anderson, Flügel, Hudson, Lathrop, Newcomer.)

11. English Composition.—An advanced course, with special reference to the philosophy of style and its practical application to various forms of literary art. Students must obtain the instructor's permission before registering for this course.

2 hrs., 1st semester. (Newcomer.)

12. Essayists of the Nineteenth Century.—A study of the modern essay in its various aspects, based upon representative selections from Macaulay, Carlyle, Emerson, Ruskin, Arnold, Lowell, Pater, Stevenson, and Huxley.

2 hrs., both semesters. (Newcomer.)

13. Oral Debate.—This course includes practice in the preparation and delivery of oral arguments, chiefly upon economic, social, political, and historical topics. It is open to a limited number of students, and except in unusual cases, only to students who have had English 9. [See History 29.]

2 hrs., both semesters. (Lathrop, Duniway.)

16. Characteristics of Shakspere.—A comprehensive survey of all the works ascribed to Shakspere, with a view to the illustration of the grounds of his literary supremacy. Open to students of all departments who have taken courses 3 and 5, or who otherwise satisfy the instructor of their fitness.

2 hrs., 2d semester. (Anderson.)

17. Spenser.—A critical examination of his works, with a study of his character, of the esthetic and moral qualities of his poetry, and of his relative position in the history of literature. Students should consult the instructor before registering for the course. [Spenser's Works, Globe edition.]

2 hrs., 2d semester. (Newcomer.)

18. English Literature of the Eighteenth Century.—A comparative study of the literature of the Augustan period, and the early romantic revival. Open to those only who are familiar with either French or German. *a*. The Age of Pope (first semester). *b*. The Age of Johnson (second semester).

3 hrs., both semesters. (HUDSON.)

19. Representative English Poets of the Nineteenth Century.—*a*. Keats, D. G. Rossetti, Matthew Arnold, Swinburne, William Morris (first semester). *b*. Tennyson (second semester).

3 hrs., both semesters. (HUDSON.)

20. Thesis.—In certain courses, students will be given an additional hour of credit on presentation of a satisfactory thesis embodying the result of independent work. Permission to register for thesis work must be obtained in each case from the major professor. *1 hr., either or both semesters.*

21. American Literature.—A survey of American literary history, and the reading and discussion of notable works in prose and verse. Students in this course are expected to possess the works of the chief American poets, especially Bryant, Poe, Longfellow, Whittier, Emerson, Lowell, Whitman, and Lanier. Open only to students who have taken courses 3, 5, and 8, or their equivalent. *3 hrs., both semesters.* (HARDY.)

22. Anglo-Saxon.—*a*. Anglo-Saxon Grammar and translation of select passages in prose and verse (first semester). *b*. Introduction to the study of Anglo-Saxon literature and Outline of Historical English Grammar (second semester). *b* is a continuation of *a*, but is open to all students who have satisfied the instructor of their fitness. For both *a* and *b* some knowledge of either German or Latin is a prerequisite.

3 hrs., both semesters. (FLÜGEL.)

23. Chaucer.—This course is an elementary one, and includes an outline of Middle English Grammar for the beginner; it is open to students who have taken course 22 and English History (course 13 in History, or its equivalent). Students having completed this course will be admitted in the second semester to the advanced course in Chaucer (33*a*).

2 hrs., 1st semester. (FLÜGEL.)

24. Wordsworth and his Contemporaries.—This course is intended to cultivate a catholic appreciation of the poetry of Wordsworth, Coleridge, Byron, Shelley, and Keats. Many of

the more notable works of these poets are read; their biographies are studied for light upon their art and thought; and the great social and literary movement which they exemplify and interpret is discussed. Open to the more advanced undergraduate students of all departments. [Macmillan's Globe editions of Wordsworth, Shelley, and Coleridge.] *3 hrs., 1st semester.* (Anderson.)

25. Browning and Tennyson.—A study of the respective artistic methods of these poets, and a discussion of their philosophy of life. This course is in some sense a continuation of course 24, and is open to the same class of students. [The Globe edition of Tennyson, and the Riverside edition of Browning.] Courses 24 and 25 alternate with course 26, and will not be given in 1899–1900.] *3 hrs., 2d semester.* (Anderson.)

26. Milton.—A critical examination of the poems and of some of the prose works of John Milton, and a study of his life and times with a view to the realization of his character, a comprehension of his historical importance, and an appreciation of the classical quality of his poetry. [Masson's smaller edition of Milton's Poems three vols., either Pattison's or Garnett's or Stopford Brooke's account of Milton's life and works, Hales's edition of the Areopagitica, and Verity's annotated texts (Cambridge Press). *3 hrs., both semesters.* (Anderson.)

27. Shakspere.—A study of some fifteen of the plays, so selected as to illustrate the author's range and the variations of his art in the successive periods of his life. The selection of plays is changed from year to year and credit is allowed for one, two, three, or four semesters, according to the amount of time the student cares to give to the work. This course is intended primarily for the more advanced students in the English Department, but is open to others who may satisfy the instructor of their fitness. [Dowden's Primer of Shakspere, the Temple edition of the several plays, and at least one volume of Furness's Variorum edition.] *3 hrs., both semesters.* (Anderson.)

GRADUATE COURSES.

In connection with the following courses, opportunity will be afforded to graduate students to pursue lines of reading and investigation under the guidance of the professors. The courses offered lead to the Doctor's degree, but the specific requirements for the degree must vary with every individual. In no case will the degree be conferred except upon the completion of a thesis

embodying the results of original work of a high order. More definite information will be furnished by the members of the English staff to intending students who write giving the necessary information respecting their purposes and equipment.

28. History of English Lyrical Poetry, from the Earliest Times to the Middle of the Sixteenth Century.—Lectures and interpretations. [Course 28 will not be given in 1899–1900.]

2 hrs., both semesters. (FLÜGEL.)

29*a*. History of Old and Middle English Literature. *b*. **Historical Grammar of the English Language.**—The period covered is that from the Norman Conquest to the middle of the sixteenth century. *2 hrs., 1st semester.* (FLÜGEL.)

30. Beowulf.—A reading knowledge of German is a prerequisite for this course. *2 hrs., 2d semester.* (FLÜGEL.)

31. English Palæography.—Lectures and exercises.

2 hrs., 2d semester. (FLÜGEL.)

32. History of the Beginning of Modern English Literature.—From Caxton to Tottel. *2 hrs., 1st semester.* (FLÜGEL.)

33. English Seminary.

a. Chaucer.—A careful study of some of Chaucer's works, their sources and texts. *2 hrs., 2d semester.* (FLÜGEL.)

b. The English Drama of the Time of Shakspere.—Typical plays of the pre-Shaksperean period will be read, and especial attention will be given to the works of Marlowe, Ben Jonson, Beaumont and Fletcher, Webster, and others. [The Temple Dramatists, the Mermaid Series of old plays, and Lamb's Specimens of English Dramatic Poets.]

2 or 3 hrs., both semesters. (ANDERSON.)

c. The Early English Romantic Movement.—An investigation of the growth of Romanticism in English Poetry from the time of Pope to the publication of the Lyrical Ballads (1798).

2 hrs., both semesters. (HUDSON.)

d. Tennyson.—A study of Tennyson's mind and the changes in his style as shown in the shorter poems from first to last, and an especial study of all the possible sources of the Idylls of the King. Every student is required to make a bibliography of all the poems which preceded the Idylls of the King, and to write an acceptable thesis upon the sources of one of the Idylls. [This course was given in 1898–99, and will not be repeated in 1899–1900.] *3 hrs., both semesters.* (ANDERSON.)

BIBLIOGRAPHY.

1. General Bibliography.—The aim of this course is to give practical aid to students in the preparation of bibliographies. Bibliographical method, the bibliographies of special subjects, and the principal books of reference will be discussed and individual work carried out under direction in the University Library.

1 hr., both semesters. (BABINE.)

RUSSIAN.

1. Elementary Russian.—Grammar, composition, reading.

1 hr., both semesters. (BABINE.)

2. Advanced Russian.—Selections from Russian prose writers of the nineteenth century.

1 hr., both semesters. (BABINE.)

PSYCHOLOGY.

Professor ANGELL.

1. General Psychology.—Recitations and lectures. Course 1 may be taken with or without laboratory work.

3 hrs., both semesters. (ANGELL.)

2. Beginner's Laboratory Work.

1 hr., both semesters. (ANGELL.)

3. Systematic Psychology.—Sully's The Human Mind (2 vols., 1892) will be used as text. Open to those who have completed course 1 or its equivalent.

2 hrs., both semesters. (ANGELL.)

4. Laboratory Work in Psychology.—In connection with course 3. *3 hrs., both semesters.* (ANGELL.)

5. Methods of Sensation Measurement.—During the second semester the course discusses statistical methods so far as is possible without the aid of the higher mathematics. Course 5 takes up practically the methodology of Psychology.

1 hr., both semesters. (ANGELL.)

[Course 1 is based mostly on experimental work in Psychology during the last ten years. Each hour of laboratory work (courses 2 and 3) usually requires from one to two hours additional spent in preparing materials and apparatus and in collating results.

PHILOSOPHY.

Instructor PARSONS.

6. Introduction to Philosophy.—General introduction to the problems of Philosophy; largely historical in character. Lectures and recitations. *2 hrs., 1st semester.* (PARSONS.)

7. Logic and Epistemology.—Introductory logic, with discussion of its relation to the theory of knowledge. Text-book, lectures, and recitations. *2 hrs., 2d semester.* (PARSONS.)

8. Seminary in Philosophy.—Study of Spencer's First Principles, with special work in other modern English writers. Open at the discretion of the instructor to students who have had work in Philosophy or Psychology.

2 hrs., both semesters. (PARSONS.)

BIONOMICS.

[The death of Professor Thoburn necessitates the discontinuance of his special courses (Religion, and the Life and Teachings of Christ, the latter of which was given during the first semester of 1898–99). Courses 1 and 2 (Organic Life, and Social Evolution), will be given in 1899–1900 by President Jordan and Professor Kellogg, and will be scheduled under Zoology.

During the second semester of 1898–99 a special course of lectures on The Jewish Framework of Christianity was given by Rabbi Voorsanger of San Francisco.]

EDUCATION.

Associate Professor CUBBERLEY, and Assistant Professor STARBUCK.

The purpose of the Department of Education is to provide such a theoretical and practical training in educational work as will fit graduates of the University for more intelligent teaching, to offer such courses in the principles and the history of education as will be valuable from a standpoint of liberal culture, and to so put its major students in touch with the results of past experiments and investigations, and the methods of studying educational problems, as to prepare them to fill the higher educational positions in the State.

A minimum of thirty hours of work in the department will be

required for graduation in Education. Of this thirty hours courses 1 or 2 and 6 and 7 should form a part. Further than this major students will be allowed to center their work with either instructor. In addition to this requirement of hours in the department, major students will be expected to take, as collateral work, one of the biological courses (Physiology 1, or Zoology 1), and Psychology 1 and 2, and to have, before graduation, a reading knowledge of either German or French.

Teachers not candidates for a degree, but wishing to carry on special studies in the department, will be admitted to the courses on the same basis as regular students. Special lines of investigation will be outlined for students prepared to do graduate work.

1. Theory and Practice of Teaching.—Lectures, assigned reading, and reports. A discussion of fundamental pedagogical principles and their application to the work of the teacher. The work will include such topics as the preparation of the teacher, class management, conduct of the recitation, common mistakes in teaching, good and bad teaching compared, apperception, concentration, correlation, physical and moral education, plans of organization in elementary and secondary schools, the course of study in each, a pedagogical examination of the subjects taught and their relation and relative value, vocational training, and present tendencies in public school education. This is an introductory course, and will be required of all candidates for the teacher's certificate. *3 hrs., both semesters.* (CUBBERLEY.)

2. History of Education in Europe.—A study of the development of educational ideals from the time of the Greeks down to the present, with an interpretative study of the great classics of educational literature, the educational ideas advanced in each, and the extent to which these have been incorporated in the pedagogy of today. An examination will be made, by means of lectures and assigned reading, of the close connection existing between the history of education and the social and political forces which have operated in the evolution of the various historic ideals and schools. Open to second, third, and fourth year students, and to first year students who have had experience in teaching. [This course alternates with course 3, and will be given in 1899–1900.] *3 hrs., both semesters.* CUBBERLEY.)

3. History of Education in America.—A study of the evolution of public school systems in the United States. The course will include such subjects as the colonial and revolutionary per-

iods, the development of a few of the typical State and city systems and the extension of supervision, the growth of secondary and higher education, and present problems and tendencies in American education. Open to second, third, and fourth year students, and to first year students who have had experience in teaching. [This course alternates with course 2, and will not be given in 1899–1900.] *3 hrs., both semesters.* (CUBBERLEY.)

4. **Moral Education.**—A discussion of the methods of developing the moral life through the materials available in the common schools. The topics studied will include the nature of the moral instinct in its sociological and psychological aspects, the difference between moral training and theoretical ethics and the place of each in education, the moral training adapted to early childhood, later childhood, and adolescence, and means of awakening the moral sensibility. *2 hrs., 1st semester.* (STARBUCK.)

5. **Herbartian Pedagogy.**—A sketch of the Herbartian movement and its influence upon elementary and secondary education. During part of the semester there will be text-book work in Herbart's Science of Education. The Herbartian methods will be discussed in their relation to the more recent psychology of attention, apperception, and the emotions.

2 hrs., 2d semester. (STARBUCK.)

6. **Child Study.**—The aim of this course is to put students in line with the results of the study of childhood and youth. It will call out and emphasize those aspects of the subject which seem sound from a scientific standpoint, and those which are especially significant in their bearing on the work of teaching. The course will begin with the history of child study and a criticism of its methods. During 1899–1900 the work will center around the line of growth and individual and sex differences in childhood and youth, as shown first, by the facts of embryology, second, by the study of individual children, and third, by the application of empirical methods to the study of children in groups. Open only to advanced students.

3 hrs., 1st semester. (STARBUCK.)

7. **Educational Psychology.**—The problems of education and the practice of teaching will be viewed in the light of the well-established laws of experimental psychology and the physiology of the nervous system. The finer anatomy of the nervous system, the psychology of habit, memory, association, imagination, the

senses, attention, apperception, instinct, the emotions, and fatigue, will be focused on educational theory and practice. Open only to advanced students. *3 hrs., 2d semester.* (STARBUCK.)

8. Organization and Supervision.—Lectures, assigned reading, and reports. The first semester's work will deal with State and county supervision, and will involve a comparative study of the school laws from which State and county organization derive their authority, centralized and decentralized types, the rural school problem, problems of State and county supervision, etc. The second semester's work will deal with the problems of city supervision, such as the various plans of organization, educational and business management, the teaching force, grading and promotion, the course of study, the parts of the school system and their relation to one another, and the relation of the school to the community. This course is open to advanced students in the department and to others of sufficient preparation, and is intended primarily for those who wish to engage in school work as principals or superintendents.

2 hrs., both semesters. (CUBBERLEY.)

9. Thesis Work.—In each of the courses in Education, unless otherwise announced, students will be permitted to register for an additional hour, and this amount of credit will be given upon the presentation of a satisfactory thesis, embodying the results of independent work in the investigation of some assigned topic. This work is intended primarily to give majors in the department a drill in the methods of investigation of educational problems, and, unless excused, each major student will be expected to register for thesis work each semester. A limited number of students from other departments also may register for this course. A student taking two or more courses in the department at one time may select the course in which he wishes to take his thesis. Students from other departments must secure the approval of the major professor, and all students should secure the consent of the instructor in the course in connection with which the thesis is to be taken before registering for it. Students registering for thesis work will not be excused from required class reports.

1 hr., both semesters. (CUBBERLEY, STARBUCK.)

10. Seminary in Administrative Problems.—During 1899–1900 the work of this course will consist of an investigation of special problems in school administration. Open only to advanced students. *2 hrs., both semesters.* (CUBBERLEY.)

11. **Seminary in the Psychology of Childhood.**—Researches by experimental methods on the growth of children. The topic for 1899–1900 will be a study of the line of growth and nascent periods of the different senses and mental activities. Open only to advanced students.

3 hrs., both semesters. (STARBUCK.)

12. **Seminary in the Psychology and Pedagogy of Religion.**—Research work in the genetic aspect of morals and religion. The topics studied refer to the beginning in individual consciousness of the elements of the moral and religious instinct and their order of sequence from childhood to maturity. Reference is made constantly to the sociological development of religion, and to the practical significance of the laws discovered. During the year 1899–1900 the work will center about two topics: the beginnings of the moral sense, and the growth of the conception of God. Open only to advanced students, and will not be accepted as major work except by special arrangement.

3 hrs., both semesters. (STARBUCK.)

The following courses in other departments may be offered, to the extent of four hours, in fulfilling the requirements of the Department of Education:

[**Teachers' Course in Latin.**—See course 14 in the Department of Latin.]

[**Teachers' Course in English.**—See course 7 in the Department of English.]

[**Methods of Studying and Teaching History, and Interpretation of History in Grammar and Secondary Schools.**—See courses 21 and 22 in the Department of History.]

[**Teachers' Course in Elementary Physics.**—See course *c* in the Department of Physics.]

[**School Hygiene.**—See course 4 in the Department of Hygiene and Organic Training.]

TEACHERS' CERTIFICATES.

Under the ruling of the State Board of Education, in accordance with sections 1775 and 1792 of the Political Code of California, graduates of this University who are recommended by the Faculty as having had "academic and professional training equivalent to that required by the State University of California," may receive certificates to teach in this State without examination. To receive

this recommendation students must have had not less than twelve hours of work in Education. Of this minimum of twelve hours course 1 must form a part unless a substitution is allowed by the head of the department, which will be done only in the case of students who have had a good normal school education or long successful experience as a teacher. Any of the courses in the department, except course 12, may be offered as a part of the twelve hours, provided that not more than four of the twelve hours may consist of courses 13 to 17.

Students from other departments wishing to prepare themselves for the certificate are advised to let their educational work extend over at least three semesters, taking a small number of hours each semester, and no student will be credited with more than seven hours toward the certificate in any single semester.

HISTORY.

Professors Howard and Show, Associate Professor Spencer, Assistant Professor Dunlway, and Assistants Eaves and Anderson.

1. Constitutional and Political History of Greece.—This course is designed to afford a careful study of the evolution of Greek forms of government and Greek political ideas from the earliest times, through their expression in the great historical epochs to the period of the supremacy of Rome, 146 B. C. Literature, art, and social institutions are considered in their relation to this central theme. The course is intended to afford a general training in scientific method and in the systematic use of books. Class work consists of lectures by the instructor, written exercises, and discussion of special points by the class. All students in the course having history for the major subject are expected to register for course 20. *3 hrs., both semesters.* (B. J. Anderson.)

2. Early Mediæval Institutions.—Open to all who have taken course 1 or an equivalent. Course 2 covers the period from the fourth to the tenth century (A. D. 284–888), ending with the overthrow of the Carolingian monarchy. Beginning with the organization of the later Roman Empire, it traces the main development of primitive Germanic institutions, the rise of the mediæval church, the expansion of the Frankish empire, the beginning of feudalism, and the foundation of the great mediæval states. The

methods of instruction are the same as in course 1. Ability to use German and French books, though not required, is of great service in this course. *3 hrs., both semesters.* (Show.)

4. **History of Europe in the Nineteenth Century.**—This course deals primarily with the social and political development of Europe, but includes also the study of the commercial and colonial expansion, and of the international questions involved. [Course 4 will not be given in 1899–1900.]

3 hrs., both semesters. (Spencer.)

5. **Church and State in the Middle Ages.**—Course 5 is open to graduates and undergraduates who have taken course 2 or its equivalent. It considers the relations of the early church to the pagan and Christian empires, the rise of the papacy, the foundation of the temporal power, the theory of the Holy Roman Empire, the conflicts of the church and the civil power, and similar topics. After the ninth century, special stress is laid on the relations of the papacy to the German empire. Students are guided in research work on selected topics. [Course 5 will not be given in 1899–1900.] *2 hrs., both semesters.* (Show.)

6*a*. **History of the Italian Renaissance.**—After a brief consideration of the characteristic forms of mediæval thought and culture, the course will be devoted to a detailed study of the Renaissance in Italy. Among the principal subjects of investigation will be the political conditions in Italy in the fourteenth and fifteenth centuries, the revival of learning, and the development of the new humanism in its relations to the political, intellectual, social, and religious life of the later middle ages. Incidental attention will be given to the art and literature of the period, as embodiments of Renaissance ideals. It is not in any sense, however, a course in art history. Course 6*a* is open to graduates and to third and fourth year undergraduates.

2 hrs., both semesters. (Show.)

6*b*. **Seminary in Renaissance History.**—In connection with course 6*a* a limited number of students will be guided in special researches in Renaissance history. The work of the seminary for 1899–1900 will be to study the spirit of humanism as manifested in some of its leading exponents. To this end, so far as practicable, the lives and works of representative men of the age will be examined, such as Petrarch, Boccaccio, Machiavelli, Erasmus, Nicholas V, Leo X, Lorenzo de Medici, Savonarola, Raphael, Michel Angelo. This seminary will be open to students taking

course 6*a* who are able to make practical use of German and French books, or to others showing the like necessary preparation.

2 hrs., both semesters. (Show.)

7. American Colonial History.—Course 7 is open to graduates, and to undergraduates who have had either course 1 or course 13 or an equivalent. It should precede course 8 as an introductory course. The expansion of Europe in American exploration, commerce, and settlement, receives systematic treatment. Special attention is given to the constitutional development of the English colonies. *2 hrs., both semesters.* (Howard.)

8. Constitutional and Political History of the United States Since 1775.—Course 8 is open to graduates and to undergraduates who have had courses 1 and 2 or their equivalent. It should, when practicable, be preceded by course 7. It is a study of the Revolution, the Critical Period, and the formation and development of the National Constitution. This course is important for the study of law. *3 hrs., both semesters.* (Howard.)

9. History of the English Constitution to 1485.—Course 9 is open to graduates and advanced undergraduates. It is designed to afford a detailed study of the origin and development of English institutions, local and national, to the end of the Middle Ages. This course is especially important as a preparation for the study of law. [Course 9 will not be given in 1899–1900.]

2 hrs., both semesters. (Howard.)

10. History of the English Constitution Since Henry VII.—Course 10 alternates with course 9, and is open to graduates and to advanced undergradutes. It is designed to afford a detailed study of the growth of the English Parliament and the Cabinet system. Particular attention is given to the constitutional results of the Puritan Revolution and to the existing forms of local government and administration. This course is also important as a preparation for the study of law.

2 hrs., both semesters. (Howard.)

11. The French Revolution.—With special reference to its causes and its constitutional experiments. Open to students having a fair knowledge of general European history. [Course 11 will not be given in 1899–1900.]

2 hrs., both semesters. (Howard.)

13. History of England Since 1485.—The aim is to trace political and social development. The internal history of the country is

traced, but the chief point of view in the last two centuries is the industrial and colonial expansion, and thus the subject is studied in its European and American relations. Course 13 is open to all students, but is specially adapted for a first year course.

3 hrs., both semesters. (DUNIWAY.)

14. History of the Protestant Reformation.—This course begins with the study of the fundamental principles of the Reformation, especially as seen in Luther, Zwingli, and Calvin. The origin, principles, and growth of the various sects within Protestantism are traced. Special attention is paid to the Counter-Reformation, including the Council of Trent, the Jesuits, the Inquisition, and the Index. The economic and intellectual relations of the Protestant movement and the political and religious struggles growing out of it are traced to the close of the Thirty Years' War. [Course 14 will not be given in 1899–1900.]

3 hrs., both semesters. (SPENCER.)

15. Constitutional and Political History of the United States Since 1840.—Course 15 is open to graduates, and to undergraduates who have had courses 7 and 8 or their equivalent. This course is practically a continuation of course 8. It is a study of the later phases of the slavery struggle, territorial growth, secession, the rebellion, reconstruction, and national problems since the war.

3 hrs., both semesters. (DUNIWAY.)

16. Pacific Coast History.—Open to a limited number of advanced students. This is an investigation course, giving systematic training in seminary methods. Its members will make independent investigations and report their results to the class. This co-operative work will develop a topical treatment of important phases of the history of the Pacific Coast of America.

2 hrs., each semester. (DUNIWAY.)

17. Constitutional Law of the United States.—This course deals with Constitutional interpretation and development. Text-book: Thayer's Cases on Constitutional Law. [Course 17 will not be given in 1899–1900.] *3 hrs., both semesters.* (DUNIWAY.)

18. Development of Political Theories in the Seventeenth and Eighteenth Centuries.—After a consideration of the differences between the mediæval and the modern state and of the point of view of mediæval writers on politics, a survey will be made of the ideas of the sixteenth century. The course will consist mainly of the study of English and French political writers of the two following centuries. The point of view will be the conflict between

conservative or absolutist and liberal or democratic tendencies, and the different uses made of the notions of natural law and of social compact as foundations for opposing views will be investigated. The attempt will be made carefully to trace the connection of theories with practical politics, whether as cause or as result. This is a seminary course, with one session each week. Open to third and fourth year students. [Course 18 will not be given in 1899–1900.] *2 hrs., both semesters.* (Spencer.)

19. Department Seminary.—The Seminary is designed primarily to afford a practical training in methods of historical research through the use of original materials; and it combines the advantages of a University Historical Society. The distinctive work of graduates falls mainly under direction of the Seminary. On invitation it may be taken by fourth year students in History and by others who are deemed qualified. All the instructors in the department will attend as members and leaders. The work at the weekly sessions will consist of the presentation and discussion of papers, reports, book reviews, and similar results of independent research. A record of proceedings will be made by the secretary. Members of the Seminary are not expected to register for course 20. The work of the year 1899–1900 will fall in two main divisions: (*a*) studies in historical methods (first semester); (*b*) student reports on thesis investigations (second semester).

2 hrs., both semesters.

(Howard, Show, Spencer, Dunlway, Eaves, Anderson.)

20. Thesis or Research Work.—In all courses in History, unless otherwise specified, students will be given an additional hour of credit, on presentation of a satisfactory thesis embodying the results of independent study. Permission to register for thesis work must be obtained in each case from the major professor. As a rule, every student taking History as a major subject is required to register for thesis work; but no one should register until after consultation with the instructors in the courses which he proposes to take. In special cases permission will be given to register for two hours. When a student is taking two or more courses in History the same semester, he may select his thesis in connection with either of them. Topics for independent investigation are suggested in connection with the various courses in the Historical Department. Registration for thesis work is not intended to exempt students from such incidental reports or discussions as may be required in connection with any course.

1 or 2 hrs., each semester.

21. Methods of Studying and Teaching History.—With special reference to secondary schools and schools of lower grade. To afford a basis of comparison, this course will be opened with a critical study of the leading works on advanced methods; and it should be followed by course 22. It is accredited by the Department of Education. *2 hrs., 1st semester.* (Eaves.)

22. Interpretation of History in Grammar and Secondary Schools.—An examination of such simple principles of sociology and economics as should be taught in connection with history in these schools, with suggestions as to the best methods of developing the subjects in the class room. Course 22 is accredited by the Department of Education. *2 hrs., 2d semester.* (Eaves.)

23. History of Europe in the Seventeenth and Eighteenth Centuries.—This course will trace political history and international relations from the Peace of Westphalia to the French Revolution. A special study will be made of the rise of Russia under Peter the Great and Catherine II; of Prussia under Frederick II; and of the beginnings of the conflict between Prussia and Austria for the headship of Germany. The period will be studied as one in which the "Old Regime" was breaking up in Western Europe in preparation for the new era of individualism and democracy. From this point of view will be studied the growth of the maritime, commercial, manufacturing, and colonial ascendancy of England, the progressive intellectual movement in England and in France, the religious and humanitarian developments, the industrial revolution, and the break-down of the restrictive economic system in favor of arrangements based on freedom and individualism. [Course 23 will not be given in 1899–1900.]
2 hrs., both semesters. (Spencer.)

24. Constitutional History of Germany in the Middle Ages.—Open to all who have taken course 2 and who have a good reading knowledge of German. Course 24 begins with the tenth century and has for its main theme the constitutional development of mediæval Germany. Instruction is based on the text of Schröder's Lehrbuch der deutschen Rechtsgeschichte, with collateral use of Waitz, Brunner, and other modern writers. One two-hour session each week, to be fixed by the class. [Course 24 will not be given in 1899–1900.] *2 hrs., both semesters.* (Show.)

25. History of France in the Middle Ages.—Open to students who have had course 2, of which it is a continuation. Beginning with the later Carolingian period, the course traces the growth of

feudal institutions in France, the rise of the Capetian monarchy, the influence of the Crusades, the wars with England, and other important topics, closing with the death of Charles VIII (A. D. 1498). Ability to use German and French authorities is of great service in this course, but is not required. Subjects for thesis investigations will be offered in connection with the course.

2 hrs., both semesters. (Show).

26. Seminary in Mediæval History.—Course 26 may be taken only by permission of the instructor. Reasonable facility in reading Latin, German, and French is indispensable. The course centers each year on the critical study of some characteristic Latin text of the Middle Ages. The subject offered for 1898–99 was the Historia Langobardorum of Paulus Diaconus. The method of instruction is entirely informal and practical. [Course 26 will not be given in 1899–1900.] *2 hrs., both semesters.* (Show.)

27. English Political and Constitutional History, Tudor and Stuart Periods.—Course 27 is open to graduates, and to advanced undergraduates with the approval of the instructor. It is a detailed study of the political and constitutional questions arising in the period from 1485 to 1688. The lectures include a careful reading and interpretation of the most important original documents accessible in print. Frequent written exercises on assigned topics give practice in judging debatable points of the history. [Course 27 will not be given in 1899–1900.]

3 hrs., both semesters. (Duniway.)

28. Pacific Slope History. A study of ethnological, institutional, social, and economic problems connected with the development of the Pacific Slope of the United States.

3 hrs., both semesters. (Eaves.)

29. Oral Discussion. Open to graduates and advanced undergraduates. This course should usually be preceded by English 9. The aim of the course is twofold: (1) to give the student careful training in the preparation of spoken arguments on public questions in the fields of history, politics, economics, and sociology; (2) to afford experience in public speech on these questions, with the benefit of criticism from the instructors. [See English 13.]

2 hrs., both semesters. (Duniway, Lathrop.)

* ECONOMICS AND SOCIOLOGY.

Professors WARNER and Ross, Acting Professor FETTER, and Assistant Professors M. R. SMITH and DURAND.

1. Elements of Economics.—The fundamental principles of Economics presented in lectures and developed by discussions and collateral readings. A text is used. [Given in 1898–99 by Professor Fetter.] *3 hrs., both semesters.* (Ross.)

2. Practical Economic Questions.—Lectures, discussions, and collateral readings on questions of the day: the relations of labor and capital, corporations, trusts, industrial policy, and legislation. Open only to those who have taken course 1. [Alternate with course 6; not given in 1899–1900.]

3 hrs., 2d semester. (DURAND.)

3. Economic History.—A study of the development of economic life, institutions, and policy, particularly in England and the United States. The general standard of comfort and social condition of the people will be specially considered. Text-book, supplemented by lectures and readings. [Alternate with course 8; given in 1899–1900.] *2 hrs., both semesters.* (DURAND.)

4. Money and Banking.—The origin and development of money; the precious metals, their history, production, and use; bimetallism; government notes. Theory and practice of banking and credit; bank notes. Special consideration of history and present problems of United States currency. Open only to those who have taken course 1. [Alternate with course 10; given in 1899–1900.] *3 hrs., 1st semester.* (DURAND.)

5. Transportation.—Deals mainly with the problem of the relations of the railroad to the public. The economics of good roads, early forms of transportations, the beginnings of railroads, features of the present railroad network of the United States, the growth of grievances and legislative control. Foreign railroad history. Railroad financiering, consolidation, present problems.

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* On account of ill health Professor Warner is absent from the University. Professor Ross has been in Europe on leave of absence during 1898–99, and Assistant Professor M. R. Smith has been in the East. Professor Fetter has been connected with the University only for the year 1898–99, being on leave of absence from Indiana University. He has given courses in Elementary Economics, Advanced Economic Theory, Transportation, and Charities, and has co-operated in the conduct of the Seminary.

Open only to those who have taken or are taking course 1. [Given in 1899 by Professor Fetter; not given in 1899–1900.]

2 hrs., 2d semester.

6. Socialism and Social Control.—Presentation and criticism of the theories and proposals of socialists: readings from leading socialists and their critics, lectures, and discussions. The actual modern tendencies towards State regulation of certain phases and control of certain departments of industry will be studied, and an attempt made to determine the proper limits of such activity and the distinction between it and collectivism. Open only to those who have taken or are taking course 1. [Alternate with course 2; given in 1899–1900.]

3 hrs., 2d semester. (Durand.)

7. Advanced Economic Theory.—History of the growth of economic thought. Study of economic writings. In 1898–99 portions were read of Mun, Turgot, Smith, Malthus, Ricardo, J. S. Mill, Böhm-Bawerk, and some periodical literature. Lectures and reports. [Given in 1898–99 by Professor Fetter; not given in 1899–1900.] *2 hrs., both semesters.*

8. Public Finance.—The State as an economy; expenditures. History and theory of taxation; practical questions. Public works and services, and revenue from them. Public debts, theory and history. The budget and financial administration. Special attention is given to American financial history and problems and to local finance. Text-book, lectures, and discussions. Open only to those who have taken course 1. [Alternate with course 3; not given in 1899–1900.]

2 hrs., both semesters. (Durand.)

9. Politics and Administration.—The theory and practical working of American political institutions, national, State, and local. Comparison of European countries. Among topics specially discussed are: constitutions, federal government, the referendum, parties, nominations, elections, legislation, relation of executive and legislature. Lectures and collateral readings. Not open to first year students.

2 hrs., both semesters. (Durand.)

10. Municipal Government.—Description and discussion of the organization and functions of city administrations; comparison of United States with European countries. The course is intended to be practical; recent municipal movements and proposed reforms are especially considered. Lectures, discussions,

and collateral readings. Open only to those who have had course 9. [Alternate with course 4; not given in 1899–1900.]

3 hrs., 1st semester. (DURAND.)

11. **Race Problems.**—A historical, sociological, and statistical study of the Negro, Indian, and Chinese elements in the population. Lectures, assigned reading, and reports. Open to students beyond the first year.

3 hrs., 1st semester. (M. R. SMITH.)

12. **Statistics and Sociology.**—Vital and social statistics, with special reference to method. Lectures, demonstration, charting, and handling of statistics by students. Open to all students beyond the first year. *3 hrs., 2d semester.* (M. R. SMITH.)

13. **Causes of Poverty.**—A study of abnormal conditions, the social causes and effects of degeneration, vice, and pauperism. Lectures, assigned reading, and reports. Open to students who have had six hours work in the department. [Alternate with course 15; given in 1899–1900.]

3 hrs., 1st semester. (M. R. SMITH.)

14. **Charities.**—Supplementary to course 13. Lectures and assigned reading. Visits to the charitable institutions of the State are made by the class, and a detailed study of one institution by each student. Open to students who have had nine hours in the department, including course 13. [Alternate with course 16; given in 1899–1900. Course 14 was given in 1898–99 by Professor Fetter.]

3 hrs., 2d semester. (M. R. SMITH.)

15. **Criminology.**—The anthropology of the criminal, and the causes and conditions of crime. Lectures and assigned reading. Open to students who have had six hours work in the department. [Alternate with course 13.]

3 hrs., 1st semester. (M. R. SMITH.)

16. **Penology.**—Supplementary to course 15. Methods of treating criminals; police, police stations and courts, county jails, State prisons, penitentiaries, and reformatories. Lectures, reading, visitation and study of penal institutions. Open to students who have had nine hours in the department, including course 15. [Alternate with course 4.]

3 hrs., 2d semester. (M. R. SMITH.)

17. **Social Psychology.**—Lectures on mob-mind, craze, fad, fashion, conventionality, custom, tradition, invention, rational imitation, opposition, discussion, public opinion, social standard

and ideal. Preparatory to course 19. Open to first year students only by permission. Only one hour of credit can be earned in course 17. *2 hrs., 1st semester.* (Ross.)

18. Cities.—A study of the economics and sociology of the modern city, with a view to explaining its problems and forecasting its role in the future. The members of the class will co-operate in original investigations. Not open to first year students; open only to those who have taken or are taking course 1.
2 hrs., 2d semester. (Ross.)

19. Sociology.—Lectures, texts, and papers. A study of human groupings and oppositions, of the constitution and organization of societies, and of social evolution and progress. The forces and life processes of society will be emphasized rather than its groups of institutions. Open only to those who have had course 17. [Not given in 1899–1900.] *3 hrs., both semesters.* (Ross.)

20. Thesis.—In certain courses students will be given an additional hour of credit on presentation of a satisfactory thesis embodying the results of independent work. Permission to register for thesis work must be obtained in each case from the major professor. Required of major students in their third year.
1 hr., either semester.

21. Seminary.—Thesis, reviews, and reports. The subject of investigation for 1899–1900 will be "The Relation of the State to Corporate Industry and Natural Monopolies." Required of graduate and fourth year students having their major in this department. No registration except at the beginning of the academic year. *2 hrs., both semesters.*
(Ross, M. R. Smith, Durand.)

LAW.

Professor Abbott, Assistant Professor Whittier, Instructor Reynolds, and Lecturer Lindley.

The Department of Law conforms in all respects to the other departments of the University. The requirements for admission are the same; the courses are open for election as major or minor subjects the same as in other departments; the same degree is granted to those who have taken Law as a major subject; in short, the work is that of a regular University Department. The full

course as finally announced will include the subjects studied in the best professional schools.

The present aims of the department are: (1) To furnish such instruction in the elementary principles of Anglo-American law as may properly form a part of the education of an American citizen; (2) To furnish such instruction in commercial law as may be adapted to the needs of those who intend to become merchants, bankers, brokers, etc., or to follow other lines of business; (3) To begin the study of legal history and legal institutions; (4) To furnish to students intending to adopt law as a profession instruction in some of the courses studied in professional law schools.

Students who enter the department with the intention of taking a degree in Law are recommended to acquire a reading knowledge of Latin, and to prepare themselves for course 13 in Latin.

The courses in Law should be taken substantially in the order given, and are to be supplemented by courses in other departments to be selected under the advice of the professors in Law. Students in Law are recommended to make History or Economics their minor courses. The study of English and American constitutional history will be of special value. Usually the student will not be advised to take any law during his first year in the University, but to begin with his minor subject, and with such other subjects as will best fit him for assuming the study of law. As a condition to graduation in Law each student will be required to present a thesis of about three thousand words on a subject to be selected under the advice of the major professor.

Without special permission students whose major subject is Law will not be allowed to register for more than nine hours in Law in any one semester; and major students who are carrying as many as six hours in Law will not be allowed to register for more than nine hours in other subjects.

1. Elementary Law.—This course deals with the structural elements of Anglo-American law and is intended to familiarize the student with its fundamental conceptions, principles, classifications, and relations. [Text-book: Robinson's Elementary Law (Little, Brown & Co., Boston, Mass.)]

2 hrs., both semesters.

2. Common Law Pleading.—This course includes a study of the different forms of action at Common Law and of the system of pleading in vogue in England after the Hilary Rules. [Text-book: Ames's Cases on Pleading (Charles W. Sever, Cambridge, Mass.); students are recommended to purchase for reference

Shipman's Common Law Pleading (West Publishing Co., St. Paul, Minn.)] *2 hrs., both semesters.* (WHITTIER.)

3. Contracts.—This course is a study of the elementary principles and conceptions of the law of contracts as deduced from leading cases. [Text-book: Langdell and Williston's Cases on Contracts (Little, Brown & Co., Boston, Mass.); students are recommended to purchase for reference Anson on Contracts, Huffcut's edition (Baker, Voorhis & Co., New York), or Harriman on Contracts (Little, Brown & Co.)]

3 hrs., both semesters. (WHITTIER.)

4. Torts.—This course deals with the various wrongs which are usually classified under the heading of torts. Leading cases will be studied. [Text-book: Ames and Smith's Cases on Torts (John Wilson & Son, Cambridge, Mass.) Students are recommended to purchase for reference Clerk and Lindsell on Torts (Sweet & Maxwell, London), or Bigelow on Torts (Little, Brown & Co., Boston.)]

3 hrs., both semesters. (WHITTIER.)

5. Criminal Law.—This course deals with the law of crimes. It will include a study of the history of the criminal law, as well as of specific crimes. [Text-books: Beales's Cases on Criminal Law (Harvard Law Review Publishing Association; students are recommended to purchase for reference Clark's Criminal Law (West Publishing Co., St. Paul, Minn.)]

6. Persons and Domestic Relations.—This course includes a study of the legal relations of the family, of marriage and divorce, husband and wife, parent and child, guardian and ward, and such aspects of master and servant as are not treated under agency.

7. Agency.—This course will include a study of the law of Principal and Agent, Master and Servant, Brokers and Factors. [Text-book: Wambaugh's Cases on Agency (Harvard Law Review Publishing Association, Cambridge, Mass.)]

3 hrs., both semesters. (REYNOLDS.)

8. Corporations. In this course the elementary principles of the law of private corporations will be dealt with. [Text-book: Cummings' Cases on Corporations.]

3 hrs., both semesters. (REYNOLDS.)

9. Negotiable Paper.—This course will deal with the law of Bills, Notes, and Checks. As arranged, it is proposed to make the course of advantage to those intending to engage in business,

as well as to those intending to practice law. [Text-book: Ames's Cases on Bills and Notes. Students should provide themselves with some treatise on the subject, for reference.]

10. Property.—This course will include the law of Personal and Real Property, and will require three years to complete the subject. [Text-books: Gray's Cases on Property (Charles W. Sever, Cambridge, Mass.) and Digby's History of the Law of Real Property (Clarendon Press, Oxford). Students are recommended to purchase for reference Pollock's Land Laws (Macmillian & Co.) and Pollock and Maitland's History of English Law (Little, Brown & Co., Boston)].

a. The first year's course will consist of a study of Vol. I, Gray's Cases. This includes Personal Property and the introduction to the law of Real Property. The student should read Vol. II, Blackstone, before taking up this course.

2 hrs., both semesters. (ABBOTT.)

b. The second year's course will consist of a study of Vol. II and Vol. III, Gray's Cases.

3 hrs., both semesters. (ABBOTT.)

c. The third year's course will consist of a study of cases selected from the remaining volumes of Gray's Cases.

3 hrs., both semesters. (ABBOTT.)

11. Anglo-Saxon Laws.

a. Elementary Course.—In this course the law of Ine and Alfred will be read and interpreted. The text recommended is either Schmid, Die Gesetze der Angelsachsen, 2d ed., or Turk's ed. of the Legal Code of Alfred the Great (Boston, Ginn & Co.)

1 hr., both semesters. (FLÜGEL.)

b. Advanced Course.—This course is a continuation of course *a*, and will be devoted to an interpretation of the whole body of Anglo-Saxon law. The text used will be Schmid's ed. The Essays in Anglo-Saxon Law (Boston, Little, Brown & Co.) are recommended. [As the laws will be read in Anglo-Saxon, a short grammatical outline of the language will be given, based on Sweet's Anglo-Saxon Primer. A reading knowledge of Latin and German will be very desirable, and for the advanced work necessary.]

1 hr., both semesters. (FLÜGEL.)

12. Moot Court.—The moot courts are limited to nine members each. Four members prepare briefs and argue a case, the remainder of the members sit as judges. Courts may be organ-

ized when required. Each member will be required to prepare one brief and two opinions, or two briefs and one opinion, each semester for which he registers. Only those students who have had course 1, or an equivalent in law, can register for moot-court work. *1 hr., both semesters.*

13. Code Pleading.—This course includes a study of the California Code of Civil Procedure.

1 hr., 2d semester. (HUTCHINSON.)

[**14. Constitutional Law.**—See History 17.]

[**15. Roman Law.**—See Latin 13.]

16. Mining and Irrigation.—This course deals with the history of the United States Land Laws, and with the principles of the Law of Mining and Irrigation.

1 hr., both semesters. (LINDLEY.)

MATHEMATICS.

PURE MATHEMATICS.

Professors ALLARDICE, LITTLE, and GREEN, Assistant Professor COX, Instructor BLICHFELDT, and Assistant ATHELING.

The courses in this department have been arranged to meet the wants of three classes of students: students whose major subject is Mathematics, students in the departments of Engineering and Physics, and students who, while taking their major in some other department, desire to include some mathematics in their course.

For students whose major subject is Mathematics the following programme of work is recommended: In the first year, courses 7, 8, and 8*a*; in the second year, courses 9 and 10; in the third year, courses 11 and 12; while the work during the fourth year and for graduate students may be selected from the remaining courses, and from the Department of Applied Mathematics. The advanced courses in the more modern branches of mathematics will, for the most part, be given once in two or once in three years, and it is hoped that the advanced students will thus have the opportunity of studying the more important branches of modern mathematics. Courses 1, 2, 3, 4, and 5 have been arranged for students in Engineering and Physics, after consultation with the professors in these departments; courses 1, 2, 3, and 4 forming the work for the first

year, and course 5 for the second year. The first semester's work of course 13, Differential Equations, may be taken by those Engineering students who desire to include this subject in their course.

Students who desire to take one or more years of mathematics as a part of a liberal training are recommended to begin their work in this department with courses 7 and 8, or with one of them.

1. Algebra.—(Two sections.)
2 hrs., both semesters. (BLICHFELDT, ATHELING.)

2. Trigonometry.—(Two sections.)
3 hrs., 1st semester. (BLICHFELDT, ATHELING.)

3. Solid Geometry.—(Two sections.) In this course a few weeks will be devoted to a discussion of some of the more important parts of Plane Geometry.
2 hrs., 1st semester. (BLICHFELDT, ATHELING.)

4. Co-ordinate Geometry.—(Two sections.)
5 hrs., 2d semester, and 3 hrs., both semesters.
(BLICHFELDT, ATHELING.)

Courses 1, 2, 3, and 4 constitute the first year's work for students in Engineering.

5. Calculus.—Byerly's treatises are used as texts.
5 hrs., both semesters. (COX, BLICHFELDT.)

Course 5 constitutes the second year's work for students in Engineering.

7. Geometry.—This course includes a discussion of some of the more modern developments of Synthetic Geometry. Open to students who have credit for Plane Geometry as an entrance subject.
2 hrs., both semesters. (ALLARDICE.)

8. Algebra.—Chrystal's Introduction to Algebra will be used as a text-book. Open to students who have credit in Elementary Algebra as an entrance subject.
3 hrs., both semesters. (GREEN.)

8*a*. Trigonometry.—Elementary course in Plane Trigonometry.
2 hrs., 2d semester. (COX.)

Courses 7, 8, and 8*a* should be taken as the first year's work by students making Mathematics their major subject. These courses are recommended to students whose major subject lies in some

other department, but who may desire to include some mathematics in their course.

9. Advanced Algebra.—A continuation of course 8. Chrystal's Text-book of Algebra is used as a text.

2 hrs., both semesters. (LITTLE.)

10. Co-ordinate Geometry.—An elementary course in the analytic geometry of the conic sections, including the discussion of the general equation of the second degree. (Two sections.)

3 hrs., both semesters. (GREEN, COX.)

Courses 9 and 10 form the regular work, during the second year, for students whose major subject is Mathematics.

11. Advanced Co-ordinate Geometry.—Salmon's Conic Sections is used as a text-book. *2 hrs., both semesters.* (COX.)

12. Differential and Integral Calculus.—Lectures on the Differential and Integral Calculus, with applications to the theory of plane curves, on the lines of Williamson's treatises.

3 hrs., both semesters. (ALLARDICE.)

13. Differential Equations.—This course is so arranged that the work of the first semester may be taken by students in Electrical Engineering. *3 hrs., both semesters.* (LITTLE.)

14. Theoretical Mechanics.—A reading course in Thomson and Tait's Natural Philosophy. [Not given in 1899–1900.]

2 hrs., both semesters. (LITTLE.)

15. Determinants and the Theory of Equations.—Burnside and Panton's Theory of Equations is used as a text-book.

3 hrs., both semesters. (GREEN.)

16. Modern Analytical Geometry.—Lectures. [Not given in 1899–1900.] *3 hrs., both semesters.* (GREEN.)

17. Theory of Functions.—An elementary lecture course. [Not given in 1899–1900.] *2 hrs., both semesters.* (ALLARDICE.)

18. Geometery of Three Dimensions.—Salmon's Geometry of Three Dimensions is used as a text-book. [Not given in 1899–1900.]

3 hrs., both semesters. (ALLARDICE.)

19. Invariants. *2 hrs., both semesters.* (ALLARDICE.)

20. Projective Geometry.—Lectures following Reye's Geometrie der Lage. *2 hrs., 1st semester.* (ALLARDICE.)

21. Higher Plane Curves.—Lectures. [Not given in 1899–1900.]

2 hrs., both semesters. (GREEN.)

22. **Statics.**—Minchin's Statics is used as a text-book. [Not given in 1899–1900.] *2 hrs., both semesters.* (Little.)

23. **Vector Analysis.**—A course of lectures upon Vector Algebra and its applications. *2 hrs., both semesters.* (Little.)

24. **Theory of Substitutions.**
2 hrs., 2d semester. (Allardice.)

25. **Theory of Functions.**
3 hrs., both semesters. (Allardice.)

26. **Curve Tracing.**—Frost's Curve Tracing is the text-book used. [Not given in 1899–1900.]
2 hrs., both semesters. (Green.)

27. **Topology.**—A study of the geometry of relative position. Lectures. *1 hr., both semesters.* (Little.)

APPLIED MATHEMATICS.

Professor Hoskins.

1. **Analytical Mechanics.**—An elementary course, covering the fundamental principles of Statics, Kinematics, and Kinetics, restricted mainly to coplanar forces and to plane motion of particles and of rigid bodies. Designed as a preparation for the courses in Applied Mechanics taken by students of Engineering, and also as an introduction to more advanced work in Theoretical Mechanics. Open to students whose preparation includes Co-ordinate Geometry and Calculus (may be taken simultaneously with course 5 or course 12 in Pure Mathematics). Required of all students in Engineering.
3 hrs., both semesters. (Hoskins.)

2. **Analytical Mechanics.**—An advanced course, following course 1, and embracing a more general treatment of the Statics and Kinetics of rigid bodies and systems. Open to students who have completed course 1. *3 hrs., both semesters.* (Hoskins.)

3. **Applied Mechanics.**—[See course 2 in Civil Engineering.]

Beginning in 1900–01, courses in one or more of the following subjects will be open to students having the requisite mathematical training:

Theory of Attraction and of the Potential Function.
Hydromechanics.
Theory of Elasticity.
These courses must be preceded by course 2, or its equivalent.

PHYSICS.

Professor SANFORD, and Assistant Professors TAYLOR, STEARNS, and MURPHY.

I. LABORATORY COURSES.

1. Dynamics.—Open only to students who have had elementary algebra and plane geometry. One lecture and two laboratory periods per week. This course, or its equivalent, is required of all students taking Physics.

3 hrs., either semester. (MURPHY, STEARNS.)

2. Electricity and Magnetism.—One lecture and two laboratory periods per week.

3 hrs., either semester. (TAYLOR, STEARNS.)

3. Heat and Sound.—One lecture and one laboratory period per week. *2 hrs., either semester.* (MURPHY.)

4. Elementary Optics.—Open only to students who have had trigonometry. Only a small class can be accommodated, and the preference will be given to students who need this training for their major subject. *2 hrs., 2d semester.* (SANFORD.)

Courses 1, 2, 3, and 4 constitute a five hours course for one year in general Physics, and is intended to precede the advanced courses.

5. Experimental Optics.—For major students in Physics. A few others will be admitted by special arrangement.

2 hrs., both semesters. (SANFORD.)

6. Electrical and Magnetic Measurements.—To be accompanied by lecture course *a*. Open to students who have had courses 1 and 2, or their equivalent, and may be made a two years course.

2 or 3 hrs., both semesters. (TAYLOR.)

7. Electro-Chemical Measurements.—To be accompanied by lecture course *a*. Open to students who have had courses 1 and 2, or their equivalent. *2 or 3 hrs., both semesters.* (TAYLOR.)

8. Investigation of Original Problems in the Laboratory.

Hours to be determined in each case. (SANFORD.)

II. LECTURE COURSES.

a. **Electrical and Magnetic Measurements.**—To accompany laboratory courses 6 and 7. *1 hr., both semesters.* (TAYLOR.)

b. **General Physics.**—For students who have had ten hours of laboratory Physics. *3 hrs., both semesters.* (SANFORD.)

c. **Teachers' Course in Elementary Physics.**—Open to students who have had courses 1, 2, 3, and 4, or their equivalent.
1 hr., both semesters. (SANFORD.)

d. **Theoretical Physics.**—A mathematical treatment of general physical laws, with applications of mathematics to the statement of physical phenomena. Open to students who have had co-ordinate geometry and calculus.
3 hrs., 1st semester. (MURPHY.)

e. **Thermodynamics.** *3 hrs., 2d semester.* (STEARNS.)

Laboratory Fees.—For laboratory courses 1, 2, 6, and 7 a fee of three dollars a semester will be charged. For courses 3, 4, and 5 the fee will be *two* dollars. In course 8, the fee will depend upon the number of hours credit and the apparatus used, but will not exceed five dollars per semester.

CHEMISTRY.

Professors STILLMAN, RICHARDSON, and LENOX, Assistant Professor YOUNG, Instructor SWAIN, and Assistants LYON and HARKINS.

I. LECTURE COURSES.

1. Elementary Inorganic Chemistry.—Explaining and reviewing laboratory course *a*, and open, in connection with that course, to all students in the University.
2 hrs., either semester. (RICHARDSON.)

2. Advanced Inorganic Chemistry.—Experimental lectures on General Inorganic Chemistry, based on the periodic system. Open to all students who have completed courses 1 and *a*, or an equivalent. *2 hrs., both semesters.* (STILLMAN.)

3. Organic Chemistry.—Experimental lectures and reviews on the Chemistry of Carbon Compounds. Open to students who have completed course 2.
2 hrs., both semesters. (RICHARDSON.)

4. Industrial Chemistry.—Lectures on the processes of chemical arts and industries—fuels, acid and alkali manufacturing, glass, explosives, sugar-making and refining, petroleum, etc. Lectures

in this course are alse given by Professors RICHARDSON (Dyes), LENOX (Iron and Steel), and YOUNG (Pottery). Open to students who have completed courses 1, 2, and 13, and laboratory course *b*; may be taken concurrently with course 3.

2 hrs., both semesters. (STILLMAN.)

5. History of Chemistry.—Open to students who have completed courses 2 and 3. [This course will not be given in 1899–1900.] *1 hr., 2d semester, in alternate years.* (RICHARDSON.)

6. Theories of Chemistry.—Modern concepts in Chemical Theory. Open to students who have completed courses 2 and 3.

2 hrs., 1st semester. (STILLMAN.)

7. Urine Analysis.—In connection with laboratory course *f*. Open to students who have completed at least one semester's work in Quantitative Analysis. [This course will be given in 1899–1900.] *2 hrs., 1st semester, in alternate years.* (LENOX.)

8. Advanced Organic Chemistry.—Advanced topics in Organic Chemistry, including Stereo-Chemistry. Open to students who have completed course 3. [This course will be given in 1899–1900.]

2 hrs., 2d semester, in alternate years. (RICHARDSON.)

9. Toxicology.—In connection with laboratory course *g*. Experimental lectures on the detection of the more important organic and inorganic poisons. Open to those who have completed at least one semester's work in Quantitative Analysis. [This course will not be given in 1899–1900.]

2 hrs., 1st semester, in alternate years. (LENOX.)

10. Organic Synthesis.—Treating of the more important general reactions for the transformation of carbon compounds. Open to students in connection with laboratory course *c*.

1 hr., 2d semester. (RICHARDSON.)

11. Thermochemistry.—Lectures on the relations between heat and chemical energy, mainly treated by the methods of thermodynamics. Open to students who have completed course 6 and who have taken or are taking either course 5 or course 11 in Mathematics. *2 hrs., both semesters.* (YOUNG.)

12. Seminary in Chemistry.—Discussion of assigned topics in theoretical and general Chemistry. Open to graduate students, and to advanced undergraduates in Chemistry, with the approval of the Faculty in Chemistry. *1 hr., both semesters.*

13. **Qualitative Analysis.** — In connection with laboratory course *b*. *1 hr., either semester.* (Lenox.)

14. **Electro-Chemistry.**—Lectures on the generation of electricity by chemical processes, the theory of batteries, etc. *a*. Including lectures for the first semester, which will be open to students who have completed course 2. *b*. Including lectures for the second semester, which will be open only to students who have completed course 11. *1 hr., both semesters.* (Young.)

II. LABORATORY COURSES.

a. **Elementary Inorganic Chemistry.**—Experiments in Elementary Inorganic Chemistry in connection with course 1.
3 afternoons, either semester.
(Richardson, Young, Harkins.)

b. **Qualitative Analysis.**—Open to students who have completed course *a*. *3 afternoons, either semester.* (Lenox, Swain.)

c. **Preparation of Typical Carbon Compounds.**—Open in connection with course 3 to students who have completed course *b*.
3 afternoons, either semester. (Richardson.)

d. **Quantitative Analysis.**—Training in manipulation in gravimetric and volumetric methods and mineral analysis. Work begins either semester. Students in other departments than Chemistry may register for three afternoons if they cannot arrange for four, as is recommended. Open to students who have completed courses 2, 13, and *b*.
4 afternoons, both semesters. (Stillman, Lenox.)

e. **Advanced Laboratory Work.**—Considerable option will be permitted as to special lines of work to be pursued. Problems in Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Industrial Chemistry, Physical Chemistry, are among the special branches from which the advanced student may choose. Open to students who have completed course *d*.
4 afternoons, both semesters.
(Stillman, Richardson, Lenox, Young.)

f. **Urine Analysis.**—Open to students who are taking or have completed course 7. [This course will be given in 1899–1900.]
3 afternoons, 1st semester, in alternate years. (Lenox.)

g. Toxicology.—Open to students who are taking or have completed course 9. [This course will not be given in 1899–1900.]

4 afternoons, 1st semester, in alternate years. (Lenox.)

h. Inorganic Preparations.—A laboratory course in the preparation and purification of Inorganic Compounds. Open to students who have completed courses 2 and *b*.

3 afternoons, either semester. (Young.)

Candidates for the degree of Bachelor of Arts in Chemistry will be required to complete courses 1, 2, 3, 13, *a*, *b*, *c*, and *d* in Chemistry, course 1 in Physics, courses 1 and 2 in German. Students who are candidates for A. B. in Chemistry, but are looking forward to Medicine or Pharmacy as a career, are permitted to substitute Physiology 1 for Physics 1 when it is not practicable for them to take both.

III. CHEMICAL ENGINEERING.

In recognition of an increasing field of activity for men qualified to occupy positions as superintendents and managers of manufacturing enterprises involving chemical processes, it has been decided, in co-operation with the departments of Civil Engineering and Mechanical Engineering, to offer students the opportunity to obtain such training as will best qualify them for such positions. Experience shows the great advantage in these positions of fundamental training in principles of construction, strength of materials, steam engineering, machine designing, combined with thorough chemical training.

The degree of Engineer in Chemical Engineering will be conferred upon the completion of the following courses: Chemistry, 1, *a*, 2, 3, 4, 13, *b*, *c*, *d*, *e*; German, 1, 2; Physics, 1, 2; Mathematics, 1, 2, 3, 5, 6; Civil Engineering, 1, 2; Mechanical Engineering, 2, 3, 4, 5, 7, and 8; thesis work.

It is estimated that students entering the University with that intention will be able to take the degree in one year after the baccalaureate degree. Students pursuing this course will be given the degree of Bachelor of Arts in Chemistry at the end of four years.

Laboratory Fees.—A charge of *twenty dollars* per semester will be made to students in the elementary laboratory course. In all other laboratory courses the charge is *twenty-five dollars* per semester. Of these charges five dollars per semester in the elementary course and ten dollars per semester in the other courses is returnable, less bills for breakage and loss of apparatus.

BOTANY.

GENERAL BOTANY.

Professor CAMPBELL, and Assistant Professor PEIRCE.

1. **Elementary Botany.**—Study of representatives of the principal groups of plants, with lectures upon special morphology and classification. (Campbell's Elements of Structural and Systematic Botany.) The aim of this course is to give the student a grounding in the principles of plant structure and classification, derived from a careful study in the laboratory of selected types, supplemented by such explanatory lectures as may be deemed necessary. *3 hrs., both semesters.* (CAMPBELL, PEIRCE.)

2. **Algæ.**—Lectures, reading, and laboratory work upon the special morphology and classification of the Algæ.
3 hrs., 1st semester. (CAMPBELL.)

3. **Archegoniatæ.**—Special morphology and classification of the Archegoniatæ. Continuation of course 2.
5 hrs., 2d semester. (CAMPBELL.)

4. **Histological Methods.**—Application of microtome sectioning to the study of morphology and development.
2 hrs., both semesters. (CAMPBELL.)

5. **Elementary Physiology.**—Laboratory work, lectures, and reading. *3 hrs., 2d semester.* (PEIRCE.)

6. **Elementary Bacteriology.**—Laboratory work, lectures, and reading. *3 hrs., 1st semester.* (PEIRCE.)

7. **The Evolution of Plant Forms.**—Lectures. Open to all except first year students. *1 hr., 2d semester.* (CAMPBELL.)

8. **Physiological Anatomy.**—Laboratory work and lectures on the cells and tissues, especially of vascular plants.
3 hrs., 1st semester. (PEIRCE.)

9. **Advanced Physiology.**—Laboratory work, lectures, and reading. *5 hrs., 2d semester.* (PEIRCE.)

10. **Advanced Work.**—Intended especially for graduate students.
(CAMPBELL, PEIRCE.)

Course 1 must precede all other courses, except course 7, and students making the subject a major must complete courses 1 to 5 inclusive, and also courses 2 and 3 in Systematic Botany, before graduation. Course 10 is intended especially for graduate stu-

dents, and opportunities will be given such students for carrying on special lines of work upon original problems.

Laboratory Fees.—Ten dollars for course 6; five dollars for courses 5 and 9; three dollars per semester for each of the other laboratory courses.

SYSTEMATIC BOTANY.

Professor DUDLEY.

Instruction in this Department chiefly relates to the Spermaphytes, their structure, affinities, and geographic distribution. The advanced work on the Fungi will also be given under its direction.

Course 1 or its equivalent is required of students intending to graduate with Systematic Botany as a major study. It is also required as a basis for courses 2, 4, and 6. An elementary knowledge of the structure of the flowering plants only is required to enter courses 3 and 5.

1. Elementary Botany.—A study of plant types, etc. [See course 1 under General Botany.]

2. The Fungi.—The laboratory work (three hours) will be devoted to morphology, development, and culture methods; the lectures to systematic relationships, with an account of economically important forms. *5 hrs., 1st semester.* (DUDLEY.)

3. Spermaphyta.—The morphology, histology, and affinities of the principal orders of flowering plants represented on the Pacific Slope will be studied, and an acquaintance made with typical forms through dissection and drawing.

4 hrs., 2d semester. (DUDLEY.)

[4. The Algæ and Archegoniatæ.—See courses 2 and 3 under General Botany.]

5. Geographical Distribution.—Lectures on the orders containing trees and shrubs and on the general principles of geographical distribution which they illustrate. Laboratory work, also preparation of herbarium specimens of woody plants, native and exotic.

2 hrs., 2d semester. (DUDLEY.)

6. Advanced Work.—Advanced work and special investigation on the biology of the Spermaphytes and Fungi, including systematic studies, and the natural methods of cross fertilization.

3 or more hrs., each semester. (DUDLEY.)

Laboratory Fees.—Three dollars per semester.

HYGIENE AND ORGANIC TRAINING.

Professor Wood, Instructors Storey and March, and Assistants Snow, Rose, Hull, Gilman, Townsend, and Chappel.

The aims of this Department are: (1) To provide general and special instruction in matters pertaining to the improvement and preservation of health; (2) To help the student, through individual advice and assistance, toward personal improvement and restoration of health; (3) To furnish the student, through facilities and instruction in the Gymnasium and elsewhere, opportunity for general organic development; (4) To provide a thorough training for those who wish to prepare themselves for teaching in this branch of education. The work in "physical training" is under the supervision of the medical director, who is the professor of Hygiene and Organic Training.

For the gymnastic training of students there are two buildings, Roble Gymnasium for the young women, and Encina Gymnasium for the young men. Both are temporary frame buildings, but are substantially built and equipped with suitable apparatus.

Excellent facilities for athletics have been provided. The young women have two tennis courts, paved with bituminous rock; the young men four courts of the same material. In addition, the athletic grounds contain a quarter-mile track, and areas for basket-ball, baseball, football, and field sports.

All students are entitled to anthropometric and medical examination. The information furnished by measurement and examination gives the medical director the basis for advice to the student as to the hygienic regimen most conducive to health and development. Exercises are prescribed for the individual, first for the correction of special weakness, and then for rational and symmetrical development. The regular gymnastic work is under the constant supervision of the instructors.

Facilities are provided for the examination of sight and hearing. The purpose of these tests is to determine whether the special sense organs are normal. If the condition is abnormal and serious enough to demand further attention the student is advised to have the defect corrected by some competent specialist.

The medical director is in his office an hour, daily, for consultation.

1. Gymnastic Exercises.—Individual and class work, with and without apparatus. Open to all students, under the advice of the

medical director. One hour of credit will be given for systematic prescribed exercise, the three exercises a week to be taken on separate days arranged according to the work of the student. (Three exercise hours a week.)

1 hr., both semesters.

(Wood, Storey, March, Rose, Gilman, Townsend, Chappel.)

2. Personal Hygiene.—Open to all students. Course 2 is designed to give the student practical knowledge upon matters pertaining to the individual care of the body, preservation and improvement of health, prevention of disease, and treatment in emergencies or "First Aid to the Injured."

2 hrs., either semester. (Wood, March.)

3. Sanitary Science.—Open to students who have completed course 2. Course 3 will take up the study of public health, general hygiene, and sanitary science. Students will prepare papers upon assigned topics. *2 hrs., 2d semester.* (Wood.)

4. School Hygiene.—Open to those who are preparing to teach. A study of the child organism, special hygiene of childhood and adolescence, physiology and hygiene of the nervous system, health condition of schools and hygiene of instruction, diseases caused or favored by school life and their prevention.

2 hrs., 1st semester. (Wood.)

5. Nursing.—Open by special permission to those who have had satisfactory preliminary training. This course is not intended for the training of professional nurses, but to give the student useful knowledge and practical training in matters pertaining to the care of the sick, treatment of injuries, what to do in emergencies, hygiene of the sick room, and similar topics.

2 hrs., 2d semester. (Wood.)

6. Hygiene of Sex.—Open to advanced students by special permission. *1 hr., both semesters.* (Wood.)

The following courses, in addition to courses 2, 3, and 4, are recommended for candidates for graduation in Hygiene and Organic Training, and for special students in this Department:

[**7. General Anatomy and Physiology.**—See course 1 in Physiology; or **Elementary Zoology.**—See course 1 in Zoology.]

[**8. Animal Physiology.**—See course 2 in Physiology.]

[**9. Organic Life.**—See course 15 in Zoology.]

10. Applied Anatomy and Physiology.—Course 10 takes up the study of human anatomy and physiology from the standpoint of hygiene and organic training.

3 hrs., 1st semester. (Snow, Storey.)

11. Kinesiology, and History of Gymnastics.—Special anatomy and physiology of exercise, bodily mechanics, history of "Physical Education," and study of the various "Systems of Physical Training." *2 hrs., both semesters.* (Storey.)

12. Special Gymnastic Training.—Includes individual and class exercises; use of gymnastic apparatus; calisthenics; light and heavy gymnastics, health and medical gymnastics, with and without apparatus. Gymnastic games. (Five exercise hours a week.) *2 hrs., both semesters.*

(Wood, Storey, March, Rose, Gilman, Townsend, Chappel.)

13. Anthropometry.—Instruction in methods of examining, measuring, and testing the body, tabulation and charting of statistics and Photography. (One lecture and three laboratory hours a week.) *2 hrs., 2d semester.*

(Wood, Storey, March, Snow.)

14. Special Courses.—Special courses of study are laid out for advanced students according to the qualifications of each individual. Such courses include the study of topics related to Hygiene, Sanitation, and Gynmastics; investigations in Anthropometry, diagnosis, special tests, and specific effects of various kinds of activity upon the different structures and functions of the human organism.

PHYSIOLOGY AND HISTOLOGY.

Professor Jenkins, Associate Professor McFarland, Assistant Professor Greene, Instructor Stoltenberg, and Assistant Cleaveland.

UNDERGRADUATE COURSES.

1. General Anatomy and Physiology.—This course is designed to give a general view of the laws of the structure and the activities of organisms. The work will give occasion to discuss many questions of General Biology. It consists of: first, the study of the cell and its activities as shown in the unicellular organisms, in reproductive cells, and in individual cells of many tissues; second, the study of the laws and course of development, resulting

in higher differentiations in structure, and specializations in function, exhibited in a selected series of organisms, both animals and plants, of increasing complexity; third, the comparative study of the physiological processes of forms placed under widely different conditions. The latter part of the course is occupied with an introduction to the embryology, anatomy, and physiology of vertebrates. (One lecture and five laboratory hours a week.)

3 hrs., both semesters.

(JENKINS, STOLTENBERG, CLEAVELAND.)

2. **Animal Physiology.**—This course is to be preceded by course 1. It includes an experimental course in physiology in the subjects: muscle, nerve, blood, circulation, digestion, respiration, elimination of wastes, metabolism, nutrition. The work covers the ground represented in Foster's Physiology, Parts I and II. (One lecture and five laboratory hours a week.)

3 hrs., both semesters. (GREENE.)

3. **Structure and Functions of the Nervous System and the Sense Organs.**—This course comprises a comparative study of a series of vertebrate brains, including the human brain, the development of the vertebrate nervous system and sense organs, and an experimental course in the physiology of the nervous system and sense organs. For texts in structure the student is referred to Quain's Anatomy, 10th ed., and Edinger; in physiology, to Foster's Physiology, Parts III and IV, and The American Text-Book. It is desirable that students in this course should have had at least the biological training represented by course 1. Students are advised to take course 7 in connection with this course. (One lecture and five laboratory hours a week.)

3 hrs., both semesters. (JENKINS, STOLTENBERG.)

4. **The Circulation of the Blood.**—Advanced course open only to those who have completed courses 1, 2, and 6.

3 hrs., 2d semester. (GREENE.)

5. **Special Courses in Physiology.**—These courses are open to those who have taken courses 1, 2, and 6. They are arranged for the advanced study of special subjects or as a drill in the methods of research. The work will be arranged for each individual student. The time of each will vary with the exigencies of the case.

2 to 5 hrs., both semesters. (JENKINS, GREENE.)

6. **Histology.**—This course includes both the study of the tissues in a comparative way, and the history of their development. Open to those who have taken course 1, or its equivalent. Stu-

dents with Physiology as their major are advised to take courses 2 and 6 together. (One lecture and five laboratory hours a week.)

3 hrs., both semesters. (McFarland.)

7. **Histology of the Nervous System and the Sense Organs.**—A course in advanced Histology dealing with the comparative structure of the Nervous System and Sense Organs. Open to those who have taken courses 1 and 6, and designed to be taken in connection with course 3. (One lecture and three laboratory hours per week.) *2 hrs., 2d semester.* (McFarland.)

8. **Special Courses in Histology.**—For advanced students who have completed courses 1, 6, and 7 special courses in Histology are offered. These are intended to afford opportunity for advanced study in special phases of Histology, Histogenesis, or Cytology, together with drill in the technique of the subjects and methods of research. *2 to 5 hrs., both semesters.* (McFarland.)

9. **Cellular Biology.**—A course in Cytology dealing with the structure and functions of the cell, with especial reference to the reproductive processes in unicellular and multicellular organisms, and the theories connected therewith. (Two lectures per week, with demonstrations and laboratory work.)

2 hr., 2d semester. (McFarland.)

10. **Mammalian Anatomy.**—Lectures and dissections.

3 to 5 hrs., 1st semester. (Greene.)

11. **General Physiology.**—A course for advanced students in the experimental study of the more recent investigations in General Physiology, as presented in the following texts: The Cell, Hertwig; General Physiology, Verworn; and Experimental Morphology, Davenport. It is designed also that the course will furnish means of drill in research in the lines studied. Open to those who have had courses 1, 2, and 6. (Conference once a week, minimum laboratory work five hours per week.)

3 hrs., both semesters. (Jenkins, Cleaveland.)

12. **Journal Club.**—Students in the advanced classes will be expected to meet once a week to discuss current literature in Physiology and Histology. *1 hr., both semesters.*

13. **Seminary in Physiology and Histology.**—Open to graduate students. *2 hrs., both semesters.* (Jenkins, McFarland.)

14. **Nature Study.**—A course of practical work in nature study for students who expect to teach nature study in the public schools. Students must receive the permission of the instructors

to register for this course. One two-hour lecture and demonstration period weekly. [Given in co-operation with Professor Kellogg: see Zoology 14.] *1 hr., 1st semester.* (Jenkins.)

Candidates for the Bachelor's degree who select Physiology and Histology as a major will be expected to take courses 1, 2, 3, 6, 7, and 12, and at least five hours to be made up from courses 4, 5, 8, 9, and 10; and in addition courses 1 and *a* in Chemistry, or courses 1 and 2 in Physics, and the first semester of Vertebrate Embryology (course 5 in Zoology).

Laboratory Fees.—Seven dollars per semester, except for course 1, in which the fee is five dollars per semester.

GRADUATE COURSES.

The graduate courses in Physiology and Histology will be planned in the case of each individual student. They will include the thorough study of some of the more recent special treatises of various subjects in Histology and Physiology, and a repetition of a sufficient number of experimental investigations to give a discipline in the methods of investigation. There will be given at different times a series of advanced lectures on Physiological and Histological subjects. The graduate students will meet weekly to discuss the journals of the Department, and will participate in the work of the Seminary in Physiology and Histology. Candidates for the Doctor's degree will occupy a considerable portion of their course on some original research, the subject of which is determined by their previous training and their inclinations. The collateral subjects to be pursued with the major will be chosen for each candidate with reference to his particular needs.

PREPARATION FOR THE STUDY OF MEDICINE.

Students intending to enter on the study of medicine, are advised to take Physiology and Histology as a major subject, with Chemistry, Physics, Comparative Anatomy of the Vertebrates, and Hygiene among the collateral subjects. Such a course gives that foundation both in scientific knowledge and in skill in experimental Physiology, and in Histological and Anatomical technique, which will make it possible to accomplish the medical course of the best medical schools in a shorter time and with greater advantage.

ZOOLOGY.

Professors Gilbert and Kellogg, Associate Professor Price, Assistant Professor Heath, Instructor Snyder, Assistant Snow, and President Jordan.

GENERAL ZOOLOGY.

1. Elementary Zoology.—A laboratory course, involving the study of representatives of the principal groups of animals, together with lectures on their structure and classification, and on the general laws of biology which they illustrate.

3 hrs., both semesters. (Heath.)

2. The Invertebrates.—This course, following the first year's work, is designed to give the student a broader knowledge of the morphology and relationships of the more important invertebrate groups. The main features of development, including the morphology of larval forms, will receive attention.

3 hrs., both semesters. (Heath.)

3. The Vertebrates.—A general course in the classification of vertebrate animals, with studies in the habits and the geographical distribution of species. The course will include field excursions and a study of the methods of collecting and preserving specimens. *2 hrs., both semesters.* (Gilbert, Snyder.)

4. Comparative Anatomy of the Vertebrates.—A more detailed examination of vertebrate morphology, including dissection of representatives of the several classes of vertebrates, with comparative studies in vertebrate osteology, the nervous and circulatory systems, etc. *3 hrs., both semesters.* (Price.)

5. Vertebrate Embryology.—During the first semester, the development of the chick; for the second semester, the shark, salamander, and mammal.

3 hrs., both semesters. (Price.)

6. Advanced Embryology.—The work during the first semester will consist of a detailed study of the development of the nervous system, the urinogenital, or some other important system of organs. During the second semester, each student will be given some special problem, usually in the line of the verification of some piece of original work.

2 hrs., both semesters. (Price.)

7. Ichthyology.—A course of lectures and laboratory work, including an examination of the larger groups of fishes, with special reference to the characters on which they are based, and including practical work in the discrimination of species.

2 to 5 hrs., both semesters. (GILBERT.)

8. Advanced Ichthyology.—Special problems in the morphology and classification of fishes will be set for advanced students prepared for such work.

2 to 5 hrs., both semesters. (GILBERT.)

9. Course in Zoological Reading.

2 hrs., both semesters. (GILBERT, PRICE, HEATH.)

ENTOMOLOGY.

10. Elementary Entomology.—The elementary study of insect structure, metamorphosis, habits, and classification, including practice in collecting and preserving specimens.

3 hrs., 1st semester. (KELLOGG, SNOW.)

11. Morphology, Development, and Classification of Insects.—Continuation of the preceding course, including the elements of insect embryology, post embryonic development, and comparative morphology. *3 hrs., 2d semester.* (KELLOGG.)

12. General Entomology.—A course of lectures and demonstrations, in which the more general aspects of the biology of insects are treated; special attention is given to those phases of insect life which illustrate certain factors in organic evolution, as mimicry, parasitism, polymorphism, social life, etc; important injurious insects, especially those of the Pacific Coast, are given attention, and the practical application of entomology, including the use of insecticides and preventive remedies, is discussed. Open to all students. *3 hrs., 2d semester.* (KELLOGG.)

13. Advanced Work.—Advanced study and investigation of the biology of insects. Laboratory and field work.

2 to 5 hrs., both semesters. (KELLOGG.)

14. Nature Study.—A course of practical work in nature study for students who expect to teach nature study in the public schools. Students must receive the permission of the instructors to register for this course. One two-hour lecture and demonstration period weekly. [Given in co-operation with Professor Jenkins: see Physiology 14.]

1 hr., 1st semester. (KELLOGG.)

BIONOMICS.

15. Organic Evolution.—Lectures on the laws or principles of biology and the factors in organic evolution. Assigned reading and the preparation of papers. Not open to first year students. *3 hrs., 1st semester.* (JORDAN, KELLOGG.)

16. Social Evolution.—Lectures on the application of the laws of biology to the life of man, the development of the human individual, and to the problems of social evolution. Assigned reading and preparation of papers. Must be preceded by course 15. *3 hrs., 2d semester.* (JORDAN, KELLOGG.)

The *Zoological Club* meets bi-weekly to discuss and record the original observations of its members. Field excursions are frequently taken, and a zoological exploration of the vicinity of Palo Alto is in progress.

Course 1 or its equivalent must precede all laboratory courses, and course 10 is required of all major students in general Zoology. These must obtain before graduation at least forty hours credit in biological subjects, selected from courses 1 to 10 in Zoology, course 2 in Physiology, and course 1 in Botany.

Students wishing to give special attention to Entomology will include courses 10, 11, 12, and 13 in their major work. Course 1 of general Zoology must precede any laboratory course in Entomology.

Work for graduate and special students will be laid out in accordance with their individual needs and preferences.

THE ZOOLOGICAL COLLECTIONS.

The *Zoological Museum* contains a very full representation of the fishes of North America, and includes among others a valuable series of the deep-water fishes of the Pacific, and large collections from the West Indies, the Hawaiian Islands, Bering Sea, Japan, and the coasts of Mexico and Central America; in all, about 50,000 alcoholic specimens, representing about 3,000 species. The museum contains also about 4,000 reptiles and 1,000 batrachians in alcohol, 3,000 mammal skins, 3,500 bird skins, and 125 mounted skeletons. The development of the museum has been due very largely to the co-operation of Mr. Timothy Hopkins.

Material illustrating the principal groups of invertebrates is ample for class instruction.

The *Entomological Collections* contain authoritatively determined specimens, accessible for comparison, in all of the insect orders, and include many sets of specimens illustrating the

development and habits of insects. There is included, also, the most important existing collection of North American Mallophaga, comprising the types of four-fifths of all the species in the order so far described from North America.

Laboratory Fees.—Five dollars per semester.

GEOLOGY AND MINING.

Professors BRANNER and J. P. SMITH, Assistant Professor NEWSOM, and Assistant ARNOLD.

1. Dynamic and Structural Geology.—Lectures, with syllabus.

3 hrs., 1st semester. (BRANNER.)

2. Economic Geology.—Lectures, with syllabus. Open to students who have completed course 1.

2 hrs., 2d semester. (BRANNER.)

3. Topographic Geology.—Field and laboratory work, with the construction of geologic maps, models, and sections. Open to students who have completed course 1 in Geology, and course 4 in Civil Engineering.

2 to 5 hrs., both semesters. (BRANNER.)

4. Special Courses.—Special courses of instruction and training are laid out for advanced and special students according to the needs and qualifications of each individual. Special investigations are taken up by advanced students as rapidly as it is possible for them to undertake such work advantageously.

1 to 5 hrs., both semesters. (BRANNER.)

5. Mineralogy.—*a*. Elementary Crystallography and Physical Mineralogy (first semester.) *b*. Blowpipe Analysis (second semester). Open to students who have had course 1 in Geology and Elementary Chemistry.

2 hrs., both semesters. (J. P. SMITH, ARNOLD.)

6. Advanced Mineralogy and Petrography.—*a*. Mathematical, Physical, and Chemical Crystallography (first semester). *b*. Descriptive Mineralogy and Petrography, with special studies of the rock-forming minerals (second semester). Open to advanced students and graduates.

4 hrs., both semesters. (J. P. SMITH.)

7. Paleontology.—*a*. Systematic Paleontology, or the history and character of organisms (first semester). *b*. Historical Geology,

or the history and character of formations (second semester). Open to students who have completed course 1.

4 hrs., both semesters. (J. P. Smith.)

8. **Paleontology.**—Original investigations of various problems in paleontology, especially of the distribution of faunas. This course will consist entirely of private work, in field and laboratory. Open to advanced students and graduates.

2 to 5 hrs., both semesters. (J. P. Smith.)

9. **Assaying.**—Course 9 assumes courses 1, *a*, and *b* in Chemistry, and courses 1 and 2 in Geology.

2 hrs., 1st semester. (Lenox, Lyon.)

10. **Mining.**—Lectures on mining operations and methods, including prospecting, exploration, timbering, hoisting, drainage, and ore dressing. Open to those who have had courses 1, 2, and 5.

1 hr., 1st semester. (Newsom.)

11. **Metallurgy.**—Lectures on Metallurgy, with special reference to the metallurgy of copper, lead, silver, and gold. Open to those who have had Geology 1, 2, and 5, and Chemistry 1, *a*, *b*, and 2. *2 hrs., 2d semester.* (Newsom.)

[Courses in mining law, mine timbering, mine surveying, and the designing of furnaces and mining machinery are also given; see Departments of Law, Civil Engineering, and Mechanical Engineering.]

Laboratory Fees.—Five dollars for the second semester in course 5; twenty dollars in course 9.

DRAWING AND PAINTING.

Professor Brown, Associate Professor Clark, and Instructor Fiske.

The Department aims to develop and direct the power of visual observation, and manual skill in connection therewith, for the purpose of increasing intellectual power to discriminate and esthetic sensibility to feel. No particular methods or technical processes, as such, are fixedly insisted upon, but each student is free to express himself in any way not inconsistent with sound workmanship. The principles of sound workmanship in drawing and painting are carefully taught, the Department in this sense being strictly a technical one.

Through a gift to the Department from Mrs. Edward Barron a series of four specially planned studios has been erected, in which the work of the Department is very perfectly accommodated.

1. **Elementary Drawing.**—Similar to course 2, except that but two-thirds as much work is covered. Open to all students, though offered to meet the requirements of those in the Engineering Departments.

2 hrs., 1st semester. (CLARK, FISKE.)

2. **Elementary Drawing.**—Two objects are kept in view: one, that of contributing to the culture of the individual through discipline of eye, mind, and hand, as also through the increase of sensitiveness to those qualities of art and nature which interest the artist, both as craftsman and as poet; the other, to teach the student how to study, how to use his eyes, his mind, his tools efficiently. The attention is disciplined and brought under control; visual and mental comprehensiveness is encouraged; a free, natural, direct, technical expression is aimed at. By these means as much power in drawing, and as much understanding and feeling as is possible in the time given, are developed. Registration in this course for less than three hours is considered inadvisable, although sometimes permitted. At least three hours (nine hours of actual drawing per week through the year, or its equivalent, is required as a preparation to any of the more advanced courses, except course 5. Open to all students.

3 to 5 hrs., both semesters. (CLARK, FISKE.)

3. **Color, Oil Painting.**—Chiefly still-life; though when the student's power warrants it, a certain amount of landscape study may be included; and, in case of advanced students, portrait study may be substituted for still-life work. Open to those who have had course 2, or its equivalent, when, in the judgment of the instructor, they are qualified to undertake the work.

3 to 5 hrs., both semesters. (BROWN, CLARK.)

4. **Advanced Drawing, The Figure.**—This course is principally devoted to life work. A very brief introduction to the human figure through the cast may be given, and toward the close of the year, some time may be devoted to drawing the head. Figure drawing is given as the most severe discipline possible, developing equally accuracy of eye, observation of structure and character, sensitiveness to beauty, and manual skill.

3 to 5 hrs., both semesters. (BROWN.)

5. **Scientific Perspective.**—This course deals first with the mathematical theory worked out in problems upon the drafting board, and afterwards with the utilization of the theory in actual out-door drawings from nature.

2 hrs., 2d semester. (CLARK.)

6. Esthetics.—The nature and use, not the origin, of the esthetic faculty. Principles of beauty deductively discovered through examination of beautiful things—chiefly natural objects. Beauty of solid form, of surfaces, of lines, of light, of color. Exercises, corresponding to laboratory work in science, in observing, comparing, analyzing, describing—both verbally and graphically—the beauties of specific objects. Exercises in observing and describing the character of the feelings produced by a perception of these beauties. This course is experimental, and will probably be about equally composed of lectures, or public exercises in esthetic analysis, of exercises and reports by the students, and of general discussions having somewhat the nature of seminary work. Open to all third year and fourth year students and to all students who have taken course 2. or its equivalent. Only a limited number will be admitted to this class, and the permission of the instructor must be obtained before registering. The sessions will, however, be open, and all comers will be welcome to attend.

1 hr., 1st semester. (Brown.)

CIVIL ENGINEERING.

Professors C. D. Marx, Wing, and Hoskins, and Associate Professor Fish.

Students intending to make Civil Engineering a major are advised, though not required, to present among their entrance subjects, advanced algebra, solid geometry, trigonometry, physics, drawing, and French or German. Special students should have completed English, elementary algebra, and plane geometry.

I. GENERAL WORK.

Linear Drawing and Descriptive Geometry.

1*a*. Linear Drawing and Lettering.—(Six hours a week, first half of first semester.) Course 1*a* is open to all students, and is required of students in Engineering. (The instruments and materials for this course cost about fifteen dollars.)

1 hr., 1st semester. (Fish.)

1*b*. Descriptive Geometry.—Including shades, shadows, and perspective. (Lectures and recitations, two hours a week, drafting, six hours; second half of first semester, and second semester.) Course 1*b* is open to students who have completed solid

geometry and 1*a*, and is required of students in Engineering. [Students of the Mathematical Department who desire only the lectures will register for one hour the first semester, and two hours the second semester.]

2 hrs., 1st semester; 4 hrs., 2d semester. (FISH.)

Applied Mechanics.

2. Applied Mechanics.

a. Graphic Statics.—This course begins with a discussion of the general theory of coplanar forces applied to a rigid body. The principles relating to the composition, resolution, and equilibrium of forces are deduced graphically, and graphic methods are given for the solution of statical problems. Then follow applications to the determination of stresses in simple framed structures, including trusses sustaining both fixed and moving loads. The determination of centroids and moments of inertia of plane areas is then taken up, but this subject is treated only so far as it has useful applications in the solution of problems in the design of structures. (Lectures and recitations three hours a week, drafting six hours; first ten weeks of first semester.)

b. Mechanics of Materials.—Under this head are treated the strength and elastic properties of the ordinary materials of engineering. The main subjects covered are simple tension, compression, and shear; theory of flexure, with applications to simple and continuous beams; theory of long columns; torsion and shafts; repeated stress; sudden stress and resilience. (Lectures and recitations five hours a week for twelve weeks, following course 2*a*.)

c. Hydrostatics and Hydraulics.—This course treats of fluid pressure, the principles of fluid equilibrium, and the laws governing the flow of water through orifices, over weirs, in closed conduits, and in open channels. (Lectures and recitations five hours a week for twelve weeks, following course 2*b*.) Open to students who have completed courses 1, 2, 3, 4, and 5 in Mathematics; required of all students in Engineering.

5 hrs., both semesters. (HOSKINS.)

3. Testing of Materials.—In this course each student is required to make a series of experiments, testing the strength and elastic properties of wrought iron, cast iron, steel, timber, brick, stone, and cement. A careful record of all experiments is required of every student. The course may be elected without cement test-

ing, in which case the credit is two hours. Open to all students who have taken or are taking course 2*b*; required of all students in Civil Engineering. *3 hrs., 2d semester.* (Wing.)

II. SPECIAL WORK.

Topographical and Geodetic Engineering.

4*a*. **Elementary Surveying.**—Surveying instruments and their adjustment; methods of surveying; topographical mapping and sketching. (Lectures and recitations, two hours; drafting and field work, nine hours.) Open to students who have completed courses 1, 2, 3, and 4, in Mathematics, and 1*a* in Civil Engineering; required of all students in Civil Engineering and Topographic Geology. *5 hrs., 1st semester.* (Fish.)

4*b*. **Elementary Surveying.**—An abridgment of course 4*a*, intended for Mechanical and Electrical Engineers. (Lectures, field work, and drafting to take up six hours per week.) Open to students who have completed courses 1, 2, 3, and 4, in Mathematics, and 1*a* in Civil Engineering.

2 hrs., 1st semester. (Fish.)

5*a*. **Geodesy.**—The adjustment of observations. Lectures. Open to students who have completed courses 1, 2, 3, 4, and 5, in Mathematics. *2 hrs., 1st semester.* (Fish.)

5*b*. **Geodesy.**—Methods of base line and angle measurements, geodetic leveling, and map projections. (Lectures, two hours; computations and drafting, three hours.) Open to students who have completed courses 4*a* and 5*a*.

3 hrs., 2d semester. (Fish.)

Railroad Engineering.

6. **Economic Theory of Railroad Location.**—Including railroad surveying, location, and construction. (Lectures and recitations, two hours; drafting and field work, nine hours.) Open to students who have completed course 4*a* in Civil Engineering; required of all students in Civil Engineering.

5 hrs., 2d semester. (Fish.)

7. **Railroad Operation and Management.**—Lectures and recitations. [Course 7 will not be given in 1899–1900.]

3 hrs., 1st semester.

It is the intention to offer ultimately a special course in Railroad Engineering in connection with the Department of Economics.

The collection of railroad books in the Hopkins Library offers exceptional opportunities for research in this line.

Structural Engineering.

8*a*. Elements of Design.

1. Materials.—Including a study of the growth, supply, and preservation of timber, the mineralogy and metallurgy of iron, quarrying, stone cutting, and manufacture of masonry materials, with methods of testing and selecting materials for structural purposes.

2. Details.—The work deals with the applications of the principles of mechanics to the design of structural details. Wooden joints, riveted joints, pin-connected joints, and masonry details are taken up in order.

3. Design.—Course 2 is extended to the determination of stresses in highway bridge trusses, girders, and mill buildings, and is followed by a study of the methods of designing simple foundations. Designs of sub- and superstructure, with working drawings, bills of material, and estimate of cost, are made.

Open to students who have completed course 1, and who have completed or are taking course 2; required of all students in Civil Engineering. *5 hrs., both semesters.* (Wing.)

8*b*. Elements of Design.—Course 8*a* abridged to meet the requirements of students taking Mining Engineering, with special applications to mine structures. (Lectures, two hours, first semester; drafting, six hours, second semester.)

2 hrs., both semesters. (Wing.)

9. Railway Bridges.—This course includes the determination of the stresses in modern types of railroad bridges, including cantilever, swing, and suspension spans, masonry arches, and arch ribs. A discussion of the most economical types, spans, and dimensions of bridges, and a study of the methods of constructing sub-aqueous foundations, shop methods, erection, inspection of material, specifications, and other factors influencing the design of bridges. Designs of sub- and superstructure are made by each student to fulfill actual conditions, the parts proportioned, and bills of material prepared. Open to students who have completed course 8*a*. *5 hrs., both semesters.* (Wing.)

Hydraulic Engineering.

12. Water Supply Engineering for Towns and Districts.—Sources of supply. Collecting and storing of water either for

water supply of towns or for irrigation purposes. Settling, filtering, conducting, and delivering of water, including the study and design of all accessory works. (Three hours lectures and recitations, six hours drafting.) Open to students who have completed courses 2, 3, 4*a*, and 8*a*; required of all students who take their major in Hydraulic Engineering.

5 hrs., 1st semester. (MARX.)

13. **Sanitary Engineering.**—Including sewerage of towns and drainage of lands. Special attention will be given to the study of all municipal sanitary problems, such as removal of sewage, destruction of garbage, construction, maintenance, sweeping, and repairs of streets and pavements. (Three hours lectures and recitations, six hours drafting.) Open to students who have completed courses 2, 3, 4*a*, 8*a*, and 12; required of all students who take their major in Hydraulic Engineering.

5 hrs., 2d semester. (MARX.)

14. **Hydraulic Motors.**—A discussion of the theory of the main types of turbines. A few lectures on the general theory of energy and on relative motion are given as an introduction to the course. Open to students who have completed course 2.

3 hrs., 1st semester. (HOSKINS.)

15. **Construction of Canals, River and Harbor Improvements.**—Lectures and designing as per arrangement. Open to students who have completed courses 2*a*, 2*b*, 2*c*, 3, 4*a*, and 8*a*.

2 hrs., both semesters. (MARX.)

16. **Technical Seminary.**—Study of German and French technical journals. Open only to fourth year students in Civil Engineering. *2 hrs., both semesters.* (MARX.)

MECHANICAL ENGINEERING.

Professor A. W. SMITH, Assistant Professor G. H. MARX, and Assistants PETERSON, SOULE, and AYRES.

The following courses in Mechanical Engineering are offered. In connection with these the student takes courses in mathematics, pure and applied mechanics, chemistry, physics, and drawing, thus making up the professional part of the course, and may also elect such work from the general courses as time and preparation admit.

Students intending to make Mechanical Engineering a major

are advised, though not required, to present among their entrance subjects, advanced algebra, solid geometry, trigonometry, physics, drawing, French or German. Special students should have completed English, elementary algebra, and plane geometry.

1. Shop Work.

a. Woodworking. (Three exercises a week, half year.)

b. Pattern Making. (Three exercises a week, half year.)

c. Forge Work. (Three exercises a week, half year.)

d. Foundry Work. (Three exercises a week, half year.)

e. Machine-Shop Work. (Three exercises a week, through the year.)

[*d* and *e* of course I will not be given in 1899–1900.] Open to all students, and required of students in Mechanical Engineering.

3 hrs., each semester. (Peterson, Soule, Ayres.)

2. Elementary Machine Drawing.—This work consists of practice in making free-hand sketches of machine parts from which working drawings, tracings, and blue prints are developed. (Six hours a week in drawing room.)

2 hrs., 1st semester. (G. H. Marx.)

3. Constructive Materials. Study of the manufacture and physical qualities of materials. Intended to prepare the student for selection of materials for machine parts. Open to students who have had elementary chemistry, and required of students in Mechanical Engineering.

2 hrs., 1st semester. (A. W. Smith.)

4. Elementary Machine Design.—*a.* Function of machines; motion, force, and work in machines. Three hours a week, lectures and recitations.) *b.* A drafting course applying the principles treated in *a*. (Six hours a week, drafting.) Open to students who have completed solid geometry, and required of students in Mechanical Engineering.

5 hrs., 2d semester. (G. H. Marx.)

5. Elementary Machine Design. *a.* Study of machine elements, frames, and supports. (Two hours a week, recitations and lectures, six hours in the drafting room, first semester.) Open to students who have completed course 4, *a* and *b*, and who are taking course 2 in Civil Engineering; required of students in Mechanical Engineering. *b.* Proportion of stress members of machines, including steam engines and boilers. (Two hours a

week, lectures and recitations, six hours in the drafting room, second semester.) Open to students who have completed courses 4 and 5*a*, and who are taking course 2 in Civil Engineering; required of students in Mechanical Engineering.

4 hrs., both semesters. (A. W. Smith.)

6. Advanced Machine Design.—A drafting course intended for fourth year students who have completed course 5.

2 hrs., both semesters. (A. W. Smith.)

7. Steam Engineering.—Mechanical theory of heat and its applications. Lectures and recitations. (Text-book: Ewing's Steam Engine.) Required of third year students in Mechanical Engineering. *2 hrs., both semesters.* (A. W. Smith.)

8. Steam Engineering. — Mechanical laboratory. Testing of engines and boilers, and experimental investigation of correlated problems. Open to students who have completed course 7, and required of students in Mechanical Engineering.

2 hrs., both semesters. (G. H. Marx.)

9. Pumping Machinery.—A lecture course for fourth year students. *2 hrs., 2d semester.* (A. W. Smith.)

10. The Development and Transmission of Power.—A study of nature's available energy and its use in engineering. Special attention is paid to fuels and the financial efficiency of the prime movers and systems of power transmission. Lectures and written reports. Open to fourth year students.

2 hrs., 1st semester. (G. H. Marx.)

Shop and Laboratory Fees.—Four dollars per semester in courses 1*a*, 1*b*, and 1*c*; two dollars per semester in course 8.

ELECTRICAL ENGINEERING.

Professor Perrine, Assistant Professor Copeland, Instructor Farmer, and Assistants Baum and Maddock.

Believing that American practice has justified the separation of the Electrical Engineer from the Electrical Manufacturer, and that it has defined the Engineer to be one who is engaged upon the solution of practical problems by the aid of obtainable apparatus, the Electrical Engineering courses have been planned for the constructor of engineering works rather than for the manufacturer of machinery. While keeping this end in view the

rapid changes in the profession have not been lost sight of, and the underlying principles of correct design are dwelt upon to such an extent as will fit the Engineer to arrive at just decisions on the merits of established or proposed methods.

In the first four years of university work in Electrical Engineering the course is so arranged that, before entering on the studies directly connected with this Department, the student pursues courses in mathematics, mechanics, physics, and chemistry; and at the same time that the Electrical Engineering courses are taken, collateral work is carried on in the practice and theory of electrical measurements and mechanical construction.

Students intending to make Electrical Engineering a major are advised, though not required, to present among their entrance subjects, advanced algebra, solid geometry, trigonometry, physics, drawing, French or German. Special students should have completed English, elementary algebra, and plane geometry.

Attention is called to the fact that the first four years do not complete the course in Electrical Engineering, but that candidates for the degree of *Engineer* in Electrical Engineering are required to continue their course through a fifth year.

UNDERGRADUATE COURSES.

1. Constructive Materials and Machinery.—*a*. Materials and methods of line construction for electric lighting, electric railways, power transmission, telegraphs, and telephones (first semester). *b*. The elements of dynamo machine design, with the discussion of the principles involved as exemplified in existing American apparatus used in lighting, power transmission, mining, etc. (second semester). (Two hours lectures and recitations, three hours drafting.) Open to students who have completed course 2 in Physics.

3 hrs., both semesters. (COPELAND.)

2. Engineering Measurements in Electricity and Magnetism.—(Four hours lectures and recitations, and two exercises in the laboratory.) A study of the elements of electricity and magnetism applied to the theory of measurements used in engineering investigations. Open to students who have completed course 1 in Physics, and expected of those carrying course 1 in Electrical Engineering. *6 hrs., both semesters.* (BAUM.)

3. Electrical Instrument Construction.—(Two exercises shop working.) Practice in the construction of testing apparatus,

small motors and dynamos, switches, arc lamps, and other appliances. *2 hrs., both semesters.* (Maddock.)

4. The Elements of Electrical Engineering.—A course of lectures and recitations, with laboratory exercises; including a general review of the subjects of electrical measurements, the elements of dynamo machine design, and its applications in the choice of generators, motors, and transformers. The principles of primary and secondary batteries, the elements of the application of electricity to lighting by arc and incandescent lamps, and a general review of electrical railroad construction and operation. This course is intended for those who are not major students in Electrical Engineering and is designed to give only an elementary understanding of the general applications of electricity to the commoner purposes of electric lighting and power transmission; so much of the theory of electricity and magnetism being given as will enable the student to understand the methods of everyday application. The course will be similar to that given in Slingo and Brooker's text-book of Electrical Engineering. Open to all students who have completed course 1 in Physics, or its equivalent.
2 hrs., both semesters. (Farmer.)

5. Central Station Design and Management.—The fundamental principles of designing central stations for electric lighting plants and railroads, writing of specifications, awarding contracts, selecting machinery, management and finance of electric plants. Lectures and recitations. Open to students who have completed course 1. *2 hrs., both semesters.* (Copeland.)

6. Engineering Problems.—Exercises in the laboratory performing engineering tests and measurements, and a discussion of problems involving their complete application.
2 hrs., both semesters. (Baum.)

7. Theory of Alternate Currents of Electricity.—Including elementary alternating currents. A continuation of course 2, in which the theory of electricity and magnetism will be more completely developed. Bedell and Crehore's Alternating Currents will be used. Open to students who have completed course 2, and intended as an introduction to course 8.
4 hrs., 1st semester. (Copeland.)

8. Alternating Current Working.—The practical principles of generating and transmitting alternating currents of electricity. A course of lectures and recitations based on D. C. and J. P.

Jackson's Alternating Currents. Open to students who have completed course 7. *4 hrs., 2d semester.* (COPELAND.)

9. Engineering Law.—A course in contracts and general business law, designed chiefly for students in Engineering. Does not count toward graduation. *2 hrs., 2d semester.* (ABBOTT.)

10. Recent Applications of Electricity.—A free discussion of the newest applications of electricity appearing in the technical journals. *1 hr., both semesters.* (COPELAND.)

In connection with course 10 it is aimed to have as many special lectures as possible. A series of tours is also taken during the second semester, when an extended study of practical installations in San Jose, San Francisco, and Oakland is made, supplementing course 5.

The Department acknowledges free copies of the following journals to be used in this course: *Electrical Engineering*, Chicago; *The Electrical World*, New York; *The Electrical Journal*, Chicago; *The Western Electrician*, Chicago; *The Journal of Electricity*, San Francisco; *The India Rubber World*, New York.

FIFTH YEAR COURSES.

During the fifth year some of the following subjects will be studied, and one of them chosen for special attention.

11. Dynamo Machinery Design.—The theory and practice of the mechanical and electrical design of direct and alternating current generators and motors.

12. The Theory and Practice of the Design of Inductive Apparatus.—(Text: Steinmetz's Alternate Current Phenomena.) (COPELAND.)

13. Telegraphy and Telephony.—The design and construction of telegraph and telephone lines, apparatus, and switch boards.

14. Special Applications for Electricity.—Apparatus for electric welding, mining, metallurgy; electrolysis in tanning, bleaching, purification of sewage, etc.

Laboratory Fees.—One dollar per semester in course 1; four dollars per semester in course 2; three dollars per semester in course 6.

UNIVERSITY EXTENSION.

Standing Committee: Professor ANDERSON, *Chairman;* Professors FETTER, J. P. SMITH, BROWN, and JENKINS.

The organization of University Extension societies is not undertaken by the University, but its instructors are, in general, prepared to respond to requests for courses of lectures not conflicting with University duties. They are also willing, whenever occasion arises, to undertake work in Teachers' Institutes, and to take part in lecture courses in neighboring towns.

In addition to a large number of single lectures delivered in the various cities and towns of the State, the following more extended courses were presented during 1898–99:

1. New Testament Studies, with Sidelights from the Greek.—*Six lectures* in Hanford. Professor MILLER.

2. The Classical Period in German Literature.—*Eight lectures* in San Francisco. Professor GOEBEL.

3. The Poetry of Robert Browning.—*Five lectures* in San Jose. Professor ANDERSON.

4. American History: The Struggle for Revenue (1775–1787).—*Two lectures* in San Francisco. Professor HOWARD.

5. The American Revolution.—*Six lectures* in San Francisco. Professor DUNIWAY.

6. Origin of the Federal Constitution.—*Two lectures* in San Francisco. Professor DUNIWAY.

7. Charity Problems.—*Six lectures* in San Jose. Professor FETTER.

8. Legal Maxims.—*Five lectures* in San Jose. Professor ABBOTT.

9. Geometry.—*One hour weekly throughout the year* with private class of teachers in San Jose. Professor COX.

10. Nature Study in the Elementary School.—*Eight lectures* to the San Francisco Teachers' Club; *four lectures* to teachers of Santa Cruz County, at Watsonville; *four lectures* to teachers of San Benito County, at Hollister; *four lectures* to teachers of San Joaquin County, at Stockton; *four lectures* to teachers of Sutter County, at Yuba; *four lectures* to teachers of Orange County, at Santa Ana. Professor JENKINS.

UNIVERSITY LECTURES, ETC.

Public lectures on subjects of general interest, by members of the Faculty or by persons invited from abroad, are given in the Chapel, usually on Tuesday evenings. The following is the list of such lectures from March, 1898 to April, 1899:

Mr. Chester Bailey Fernald, San Francisco.—Readings from "The Cat and the Cherub."

Professor Ernest M. Pease.—*Pompeii*, with lantern slides.

President David S. Jordan.—*1. Agassiz. 2. Liberty. 3. The Enchanted Mesa of Acoma*, with lantern slides. *4. Imperial Democracy. 5. The Question of the Philippines.*

Mr. George A. Clark.—*Reminiscences of the Fur Seal Rookeries*, with lantern slides.

Professor F. J. A. Davidson.—*Zola.*

Mr. Irving M. Scott, San Francisco.—*Modern Battle-Ships*, with lantern slides.

Professor Julius Goebel.—*German Folk-Songs.*

Professor Frank A. Fetter.—*Race Degeneration and Social Progress.*

Professor George E. Howard.—*The Public University and the Public Teacher.*

Professor Augustus T. Murray.—*1. Two Sides of Homer. 2. Ancient and Modern Tragedy.*

Professor Clyde A. Duniway.—*The Territorial Expansion Policy of the United States.*

Mr. George K. French, San Francisco.—*Kumassi, Ashanti, and the Gold Coast Colony*, with lantern slides.

Mrs. Jessie Calhoun Anderson, San Francisco.—Select Readings.

Professor Ellwood P. Cubberley.—*The Elementary School, Past and Future.*

Mr. G. Wharton James, Pasadena.—*1. The Seven Cities of Cibola and Zuñi*, with lantern slides. *2. The Province of Tusayan and the Snake Dance*, with lantern slides.

Miss Grace Barstow, San Jose.—Violin Recital.

Mr. John J. Valentine, San Francisco.—*Dutch Colonizers in Malaysia.*

Mr. Edward B. Payne, Berkeley.—*Walt Whitman.*

Mr. George L. Rees, Philadelphia, Pa.—*Militarism and Democracy.*

Mr. Horace G. Platt, San Francisco.—*The Spanish War.*

Professor H. R. Fairclough.—*The Greek Lyric Art*, with musical illustrations.

Professor S. W. Young.—*Artificial Food-Making.*

Professor William James, Harvard University.—*What Makes Our Lives Significant.*

Miss Cornelia Bingham, Chicago, Ill.—*How to Teach Young Deaf Children to Speak.*

Mr. Job Harriman, Los Angeles.—*Socialism.*

Mr. Frederick Warde, New York City.—*Shakspere.*

Commencement Address—May 25, 1898.

Professor Walter Miller.—*The Old and the New.*

Memorial Addresses—September 20, 1898.

Addresses in memory of *Mary Sheldon Barnes* and *Margaret Wickham*, by President Jordan, Professor Howard, Professor Cubberley, Professor Flügel, Professor Goebel, and Miss Katherine Chandler.

Founder's Day Address—March 9, 1899.

President Martin Kellogg, University of California.—*The Economics of Education.*

Intercollegiate Debates, Etc.

An Intercollegiate Debate, under the auspices of the Associated Students of Stanford and of the University of California, is held in San Francisco in April of each year. Mr. James Moffitt, of the firm of Blake, Moffitt & Towne, San Francisco, has offered a cash prize of two hundred dollars to the winning team for 1899.

The question for 1899 is, "*Resolved*, That the retention of the Philippines is contrary to the principles for which this government should stand."

The contestants from Stanford are Messrs. James Ferguson, John E. Springer, and Anthony H. Suzzallo; alternate, Carl T. Hayden.

The Carnot Medal, for individual excellence in public speaking, given by the Baron de Coubertin, in honor of the late President Sadi-Carnot, is competed for by three representatives each of Stanford and of the University of California. The subject for 1899 was, "*Resolved*, That it is for the interest of France to form a close alliance with Italy."

The contestants from Stanford were Messrs. Carl T. Hayden, John E. Springer, and Anthony Suzzallo.

THE UNIVERSITY CHAPEL.

UNIVERSITY CHAPEL UNION.

Executive Committee: Professor A. B. Show, *Chairman;* Mr. Walter Clark, *Treasurer;* Professor Walter Miller, Professor A. T. Murray, Professor J. O. Griffin, Dr. O. L. Elliott, Mrs. H. D. Stearns, Miss T. L. Swanson, and Mr. H. L. Langnecker. Mr. W. F. Hyde, *Chorister;* Mrs. Anna D. Starbuck, *Organist.*

The following is the list of speakers and subjects, March, 1898, to March, 1899, in the University Chapel, Sunday mornings at eleven o'clock, in accordance with the provision noted on page 26:

Mr. Robert R. Gailey, Princeton, N. J.—*China and the Student Volunteer Movement.*

Professor Wilbur W. Thoburn.—*1. The Life. 2. Liberty. 3. Our Religion. 4. Our Father.*

The Rev. J. K. McLean, D. D., Pacific Theological Seminary.—*1. Obedient to the Heavenly Vision. 2. I am the Door. 3. The Blessed Dead.*

Mr. Chas. C. Michener, New York City.—*The Leadership of Young Men.*

The Rev. Robert Mackenzie, D. D., San Anselmo.—*Steps to a Throne.*

Rabbi Jacob Voorsanger, D. D., San Francisco.—*1. The Religion of the Twentieth Century. 2. The Religion of a Drop of Water.*

The Rev. L. H. Hallock, D. D., Mills College. *The Value of Struggle.*

The Rev. Burt Estes Howard, Los Angeles.—*Authority in Religion.*

The Rev. Horatio Stebbins, D. D., San Francisco.—*"God so loved the World."*

President David S. Jordan.—*1. How Men Grow. 2. The Man with the Hoe. 3. The Philosophy of Despair.*

The Rev. Jay William Hudson, Santa Rosa.—*Science or Religion: Which?*

The Rev. H. Melville Tenney, San Jose. *Sins of Omission.*

The Rev. Chas. G. Baldwin, D. D., Pomona.—*A Man's Estate.*

Professor Walter Miller.—*The Habit of Thankfulness.*

The Rev. Chas. E. Locke, San Francisco.—*The Heavenly Vision.*

The Rev. R. F. Maclaren, D. D., San Jose.—*Baptism for the Dead.*

The Rev. Edward L. Parsons, Menlo Park.—*Individuality and Subordination.*

President George W. White, University of Southern California.—*Religion and Morality.*

Dr. O. L. Elliott.—*Confession before Men.*

Professor Fletcher B. Dresslar, University of California.—*Superstition and Education.*

The Rev. George B. Hatch, Berkeley.—*Being Beautiful.*

Baccalaureate Sermon—May 22, 1898.

Professor Charles Edward Markham, Oakland.—*The Social Conscience.*

Memorial Service—January 29, 1899.

In Memoriam *Wilbur Wilson Thoburn*, by President Jordan, Dr. Elliott, Professor Whittier, and Mr. Joseph Hutchinson.

UNIVERSITY ASSOCIATIONS.

PHILOLOGICAL ASSOCIATION.

Professor Walter Miller, *President;* Professor Oliver M. Johnston, *Secretary.*

The University Philological Association was organized September 17, 1892, for the purpose of reading and discussing the results of scientific investigations in language and literature. The membership consists of the instructors and advanced students in the different language departments in the University. The regular time of meeting is the last Thursday of each academic month, at 2:30 p.m. The following papers were presented between April, 1898 and April, 1899:

April 30, 1898. Professor F. J. A. Davidson—*Froissart's Pastourelles.* Professor E. M. Pease—*Notes on Cicero's Letters.*

May 19. Professor Julius Goebel—*A Critique of an American Edition of Faust, Second Part.* Professor A. T. Murray—*Discussion of some Passages in the Acharnians of Aristophanes which seem to parody the Language and Tone of the Rhesus.*

September 29. Professor John E. Matzke—*The Old French Laws Attributed to William the Conqueror.*

October 27. Professor Ewald Flügel — *The Chronology of Chaucer's Lyrics.* Mr. J. Elmore—*The Use of Epistula and Litterae in Cicero's Correspondence.*

November 17. Professor JULIUS GOEBEL—*The History of the Siegfried Legend.* Professor A. T. MURRAY—*A Note on Aristophanes.*

December 15. Professor F. J. A. DAVIDSON—*Notes on French Syntax.* Professor A. G. NEWCOMER—*License in English Rime.*

January 26, 1899. Professor JOHN E. MATZKE—*The Anglo-Norman Poet, Simon de Freine.* Professor A. T. MURRAY—*Notes on Euripides.* Dr. CHARLES R. NUGENT—*The Hebrew Goël.*

February 23. Professor H. R. FAIRCLOUGH—*The Text of the Andria of Terence.* Professor E. M. PEASE—*A New Ms. of Fulgentius.*

March 23. Professor A. T. MURRAY—*Notes on Euripides.*

SCIENCE ASSOCIATION.

Professor D. H. CAMPBELL, *President;* Professor S. W. YOUNG, *Secretary.*

The following papers were read before the Association during the year 1898–99:

Professor D. W. MURPHY—*Energetics.*

Professor G. C. PRICE—*Some Theories as to the Origin of Vertebrates.*

Professor G. M. RICHARDSON—*Organic Synthesis and some of Its Present Limitations.*

Professor FERNANDO SANFORD—*The Electromagnetic Theory.*

Professor H. D. STEARNS—*Thunderstorms.*

Professor J. P. SMITH—*Comparison of the Development of the Individual with the History of the Race in Marine Invertebrates.*

Mr. T. A. STOREY—*Muscular Fatigue.*

SUMMER COURSES.

The following regulations apply to approved Summer Courses of study:

1. Summer Courses for which credit is desired, whether taken in the Summer Schools or by special arrangement, must be regularly registered in advance at the Registrar's Office.

2. Duly authorized Summer Courses at the University (or at the Hopkins Seaside Laboratory) may receive the same credit as the same amount and kind of regular University work. For this

purpose sixteen weeks shall be considered a full semester; and courses running four, six, eight, or more weeks shall be estimated at the proper fractional equivalent of a full semester's work. For summer courses of four, six, or eight weeks students may register for not more than four, six, or eight hours respectively; and no student shall receive more than ten hours of University credit for work done during any summer vacation.

3. Persons taking preparatory subjects in the Summer Schools, or at other times under approved tutors, may receive credit only upon passing the regular entrance examinations. Special examinations, at other times than those announced in the *Register*, will not be granted.

4. [For the conditions governing special courses, not taken in the University Summer School or the Hopkins Seaside Laboratory, see page 47.]

[*Summer Courses at the University will be omitted in 1899.*]

THE HOPKINS LABORATORY.

Professors Jenkins and Gilbert, Directors.

The Hopkins Seaside Laboratory, founded by the liberality of Mr. Timothy Hopkins, of San Francisco, is a branch of the biological work of the University, holding its sessions during the summer months. The buildings are located at Pacific Grove, two miles west of Monterey, and stand on a low bluff immediately facing the sea. They consist of two two-story structures capable of accommodating about eighty students, and contain four general laboratories, one lecture room, seventeen private rooms for special investigators, and a dark room for photography. They are provided with aquaria and running water, and all necessary facilities for biological study. The library and apparatus of the University are available for use in the laboratory.

The Laboratory makes provision for three classes of students:

1. Students in the Zoological, Physiological, and Botanical Departments of the University who wish to supplement their studies with work on living marine organisms under the favorable conditions of such a station.

2. Investigators who are prepared to make researches in marine biology, for which the Pacific Coast with its almost unworked field offers exceptional attractions.

3. Teachers or others who desire to become acquainted with

marine animals and plants, and to learn the practical methods of their study.

Session of 1898.

The seventh session of the Laboratory was held during the summer of 1898, beginning June 6th.

The following were in attendance:

INSTRUCTORS.

GEORGE CLINTON PRICE, Ph. D., Associate Professor of Zoology, Leland Stanford Junior University.

FRANK MACE MACFARLAND, Ph. D., Associate Professor of Histology, Leland Stanford Junior University.

CHARLES WILSON GREENE, Ph. D., Assistant Professor of Physiology, Leland Stanford Junior University.

HAROLD HEATH, Ph. D., Assistant Professor of Zoology, Leland Stanford Junior University.

CHARLES PALMER NOTT, M. S., Assistant in Botany, University of California.

ASSISTANTS IN THE LABORATORY.

NEWTON CLEAVELAND, Assistant in Physiology, Leland Stanford Junior University.

ROBERT EVANS SNODGRASS, Assistant in Entomology, Leland Stanford Junior University.

THOSE OCCUPYING INVESTIGATORS' ROOMS.

JAMES FRANCIS ABBOTT, Student in Zoology, Leland Stanford Junior University.

FRANZ DOFLEIN, Ph. D., Privat Docent, University of Munich.

ARTHUR WHITE GREELEY, A. B., Student in Zoology, Leland Stanford Junior University.

LOUIS SAMUEL KROECK, A. M., Instructor in Biology, University of the Pacific.

JACQUES LOEB, M. D., Associate Professor of Physiology, University of Chicago.

HENRY F. NACHTRIEB, B. S., Professor of Animal Biology, University of Minnesota.

BENJAMIN THOMAS, A. B., Graduate Student in Physiology, Leland Stanford Junior University.

CLEMENT A. WHITING, M. S., Professor of Natural History, University of Utah.

THOSE TAKING REGULAR COURSES.

Elizabeth H. Bailey, Teacher in Public Schools, Fortuna.
Harvey F. Bassett, Student, San Jose High School.
Henry Pitman Beckley, Student in Law, University.
Lottie Edith Brand, Student in German, University.
George Willard Brown, Student in Economics, University.
Zaidee Mabel Brown, Student in English, University.
Walter Clark, Student in Education, University.
James Gilman Coffin, Student in Latin, University.
Rheinart P. Cowles, Student in Chemistry, University.
William Cram Cressey, Student in Physiology, University.
Richard Keith Culver, Student in Bionomics, University.
Frank Duezze Curtis, Student in Chemistry, University.
Homer Leland Day, Student in Physiology, University.
Edgar Blasdel Dawson, Student in Physiology, University.
James Le Roy Dixon, Student in Classical Philology, University.
Florence Eugenia Dorsey, Student in Entomology, University.
Susie Louise Dyer, Student in Physiology, University.
Glenn Edmonds, Student in Law, University.
Clifton Maupin Faris, Student in Chemistry, University.
Susie M. Forrest, Teacher in Public Schools, Stockton.
Ross R. Foster, Student in High School, Palo Alto.
George Horton Francis, Student in History, University.
Philip Kingsnorth Gilman, Student in Physiology, University.
James Alexander Gunn, A. B., Graduate Student in Zoology, University.
Edmund Heller, Student in Zoology, University.
Harry Harrison Kirby, Jr., Oakland.
Edward Louis Herman Knoche, Student in Botany, University.
Inakichi Kuwana, Student in Entomology, University.
Harry Leslie Langnecker, Student in History, University.
Otho Clarke Leiter, Student in History, University.
Jacob B. Lurch, Student in Physiology, University.
Julia Mathews, Student in English, University.
John Francis Ortschild, Student in Physiology, University.
Clarence W. Page, Student in Physiology, University.
Bertha Margaret Phelps, Student in Latin, University.
Flora A. Randolph, Private teacher, Montecito.
Walter Clarence Rodgers, Student in Law, University.
Frances Reese Schallenberger, A. B., Teacher in High School, San Jose.
George Lewis Seward, Student in Physiology, University.

Harlan Shoemaker, Student in Physiology, University.
Alice B. Smallfield, Teacher in Public Schools, Stockton.
Milo Herrick Spaulding, Student in Zoology, University.
Nettie Maria Stevens, Student in Physiology, University.
Thomas Andrew Storey, A. B., Graduate Student in Physiology, University.
Anthony Henry Suzzallo, Student in Ethics, University.
Julia A. Tevis, Student in Geology, University.
John Shepard Thomas, Student in Geology, University.
Ida Wehner, Student in German, University.
Martha Matilda Wheeler, Student in Education, University.
William Joseph Whitmire, Student in Law, University.
Otis Buckminster Wight, A. B., Student in Physiology, University.
Philip Lewis Wilson, Student in Law, University.
Irving Oakley Woodin, Student in Physiology, University.
Margaret Wythe, Teacher in High School, Oakland.

Session of 1899.

The session of 1899 will begin Monday, June 5th, the regular course of instruction continuing until July 15th. Investigators or advanced students may arrange to continue their work throughout the summer. A circular containing detailed information concerning the work of the Laboratory may be had on application to the Registrar or to the Directors.

Fees.—To investigators, the facilities of the Laboratory are offered free. All others will be charged a fee of twenty-five dollars.

Catalogue of Students.

NAME	HOME ADDRESS	MAJOR SUBJECT
Abbott, Fern,	*Grand Island, Nebr.*,	English
Abbott, James Francis,	*Greeley, Colo.*,	Zoology
	A. B., Stanford, 1899.	
Abrams, Le Roy,	*Inglewood*,	Botany
	A. B., Stanford, 1899.	
Acworth, Edith Marion,	*Palo Alto*,	English
Adams, Bristow,	*Washington, D. C.*,	Drawing *Sp.*
Adams, Frank,	*Wrights*,	Economics
Adams, Frank Hardin,	*Spokane, Wash.*,	Latin
Adams, H. Ernest,	*San Jose*,	Zoology
Adams, Herbert Harter,	*Seattle, Wash.*,	Electrical Eng.
Adams, Katharine,	*Wrights*	Education
†Adams, Paul Allen,	*Helena, Mont.*,	Physiology
	A. B., Stanford, 1898.	
Alden, Mary Estelle,	*Campbell*,	English
Alderman, Rupert Lewis,	*Santa Clara*,	History
Alford, Daisy,	*Tulare*,	English *Sp.*
Allan, Leigh,	*Tacoma, Wash.*,	Geology
Allen, Anna Matilda,	*Palo Alto*,	Physiology
	A. B., Stanford, 1897.	
Allen, Lily Burch,	*Palo Alto*,	Physiology *Sp.*
Allen, Robert Maxwell,	*Los Angeles*,	Geology
Allen, William Fitch,	*Holland Patent, N. Y.*,	Zoology
Alvord, Jennie,	*Salt Lake City, Utah*,	Physiol. *Sp.*
Ames, Kate,	*Napa*,	Education *Sp.*
Anderson, Blanche Josephine,	*Oberlin, O.*,	History
	A. B., Oberlin Coll., 1890; A. M., Stanford, 1898.	
Anderson, Faith,	*Palo Alto*,	Latin
Anderson, Frank William,	*Chicago, Ill.*,	Zoology
Anderson, Malcolm Playfair,	*Menlo Park*,	Zoology
Angus, Francisca Suñol,	*San Jose*,	Romanic Lang.
Anspacher, Philip Baum,	*San Francisco*,	History
Arneill, Agnes Lawton,	*Ventura*,	History
Arnold, Marion Adele,	*Alameda*,	English
Arnold, Ralph,	*Pasadena*,	Geology
Asberry, Florence Annie,	*Palo Alto*,	Education *Sp.*
Asmussen, Charles Lawrence,	*San Francisco*,	Law
Atherton, Cecelia Freeman,	*Lakeport*,	History

† Work completed in absentia.

Atkinson, William Sackston,	*Los Gatos*,	Zoology
Austin, Edith P.,	*Palo Alto*,	German
Ayer, Helen Evelyn,	*Milpitas*,	History
Ayres, Edgar Stewart,	*Tropico*,	Mechanical Eng. *Sp.*
Baber, Liverne Hayward,	*Forest Grove, Or.*,	Romanic Lang.
Bacher, Bertha Rachel,	*San Jose*,	German
Bacher, Johann Adolph,	*San Jose*,	Latin
Bacon, Dorothy Goodson,	*Palo Alto*,	Botany
Bacon, Robert H.,	*Chicago, Ill.*	Civil Eng.
Bailey, Alice Ross,	*Silver City, N. M.*,	Mathematics
Bailey, Elizabeth Harriet,	*San Jose*,	Education *Sp.*
Bailey, Forrest Cutter,	*San Jose*,	English
Bailey, Frank Joel,	*Buffalo, N. Y.*,	Civil Eng. *Sp.*
Bailey, Louis Hamilton,	*San Jose*,	Law
Bailey, Vivian,	*San Francisco*,	Education
Bailie, Samuel Girvin,	*Los Angeles*,	Economics
Baird, Alvin Walter,	*Portland, Or.*,	Physiology
Ballantyne, Samuel,	*Ola, Idaho*,	Law
Ballard, Jessie May,	*Seattle, Wash.*,	History
Bancroft, Frederic Wolcott,	*Denver, Colo.*,	Physiology
Barber, William Burton,	*Alameda*,	Geology
Bard, Albert Marius,	*San Francisco*,	Physiology
Barker, George Westerdale,	*Astoria, Or.*,	English
Barnard, Maryline E.,	*Ventura*,	Physiology
Barneberg, Grace Elizabeth,	*San Luis Obispo*,	History
Barnhisel, Claire Grace,	*San Jose*,	History
Barnhisel, Edith Mary,	*San Jose*,	Physiology
Barnhisel, Walter Benedict,	*San Jose*,	History *Sp.*
Barnwell, Susie Dale,	*Los Angeles*,	Romanic Lang.
Barrett, Annie,	*Palo Alto*,	Latin
Barrett, Gertrude M.,	*Ontario*,	Botany
Bartlett, Corinne Lawrence,	*San Francisco*,	English *Sp.*
Bartruff, Zoë Sara,	*Bellefonte, Pa.*,	English
Bates, Henry Lloyd,	*Bloomington, Ind.*,	Pysiology *Sp.*
Bauer, Hamilton A.,	*San Francisco*,	Law
Baum, Frank George,	*St. Genevieve, Mo.*,	Electrical Eng.
	A. B., Stanford, 1898.	
Beach, Wesley Heman,	*Colton*,	Latin
Beagles, Walter Conrad,	*Napa*,	Law
Beard, Edna Belle,	*Modesto*,	English
*Beckett, George Marion,	*Arroyo Grande*,	Law
Beckley, Henry Pitman,	*Honolulu, H. I.*,	Law

*Died, January 25, 1899.

Beedy, Winslow Lindhard,	*Stanley, B. C.*,	Economics *Sp.*
†Beermaker, Ida Amanda,	*San Jose*,	English
	A. B., Stanford, 1898.	
Bell, Alberta,	*Paso Robles*,	English
Bell, Annie May,	*Visalia*,	English
Bell, Henry Herman,	*Eureka*,	Geology
Bell, William Lawrence,	*Bradford, Pa.*,	Chemistry
Bell, William Nay,	*Tracy*,	Civil Eng.
	A. B., Stanford, 1899.	
Bellman, Isabella,	*San Francisco*,	Education *Sp.*
Bennett, Frank Waite,	*Phœnix, Ariz.*,	Law
Bennett, Gazella,	*Boston, Mass.*,	Education *Sp.*
Bentley, James Andrew,	*Modesto*,	Education
Berry, Fred Leslie,	*Ogden, Utah*,	Law
Berwick, Edward, Jr.,	*Monterey*,	History *Sp.*
Bethell, Ettilla,	*Henderson, Ky.*,	Romanic Lang.
	A. B., Indiana Univ., 1897.	
Bethell, Neva,	*Henderson, Ky.*,	Romanic Lang.
	A. B., Indiana Univ., 1898.	
Biber, Paul E.,	*San Francisco*,	German
Bidwell, Rolfe Bishop,	*Los Angeles*,	Law *Sp.*
Biglow, David Carlton Orvis,	*Antioch*,	Law
Billings, Florence Frances,	*Redlands*,	Latin
Bingham, Horace Tarr,	*Palo Alto*,	Mechanical Eng. *Sp.*
Binkley, Christian Kreider,	*Manheim, Pa.*,	English
	Ph. B., Illinois Wesleyan Univ., 1898.	
Birch, Ethel H.,	*Fessenden, N. D.*,	Latin
Birdsall, Kathrine,	*Berkeley*,	German
Birtch, Fayette,	*San Jose*,	Physiology
Bishop, Charles Comstock,	*Oakland*,	Electrical Eng.
Black, Roy Harry,	*San Jose*,	Electrical Eng.
Blair, Florence E.,	*Oakland*,	Romanic Lang. *Sp.*
Blanchard, Marcus,	*College Park*,	History *Sp.*
Bloom, Max,	*San Jose*,	Electrical Eng.
Boas, Margaretta Macklin,	*ColoradoSprings, Col.*,	Rom. Lang.
Bonnemort, Charles Nicholas,	*Oakland*,	Electrical Eng.
Boren, Frank Henry,	*San Bernardino*,	Chemistry
Borglum, Theodora,	*Omaha, Nebr.*,	English
Borgman, Helene,	*Yonkers, N. Y.*,	Latin
	A. B., Vassar Coll., 1890.	
Borgquist, Alvin,	*Richfield, Utah*,	Education
	B. S., Univ. of Utah, 1897.	
Boring, Oramanda,	*Palo Alto*,	Zoology

† Work completed in absentia.

Borough, Marie,	*San Francisco*,	Greek
Borough, Randal William,	*San Francisco*,	Drawing
Boston, Walter Morten,	*Durango, Colo.*,	History
Boulware, Alexander Stockton,	*Palo Alto*,	Latin
Bourland, William Franklin,	*Ardmore, I. T.*,	Law
Bowman, Guy Chapin,	*Ashland, O.*,	Mathematics
Bowman, Larrey MacFarlane,	*Mare Island*,	English
Boyd, Hugh James,	*Riverside*,	Mathematics
Boyd, Sela Motherwell,	*Greeley, Colo.*,	English
Braden, Fred Bassett,	*Los Angeles*,	Law
Bradford, Cora May,	*Carthage, Mo.*,	Mathematics
Bradley, Anne Maud,	*Tulare*,	English
Bradley, Frank Foster,	*Cincinnati, O.*,	English *Sp.*
Bradley, Oliver U.,	*Tacoma, Wash.*,	Law
Bragg, George Henry, Jr.,	*San Jose*,	Electrical Eng.
Brand, Lottie Edith,	*San Francisco*,	German
Brasch, Frederick Edward,	*Santa Clara*,	Mathematics *Sp.*
Breeden, Blanche Virginia,	*Portland, Or.*,	Romanic Lang. *Sp.*
Breen, Eugene,	*Hollister*,	Civil Eng.
	A. B., Santa Clara Coll., 1898.	
Bremner, Olney Edwin,	*Yulupa*,	Physiology
Brewster, Elizabeth,	*East Palestine, O.*,	Botany
Brickell, Howard,	*San Francisco*,	Law
Briggs, Caroline Elizabeth,	*Westside*,	Mathematics
Briscoe, John S. Withington,	*Chico*,	Economics *Sp.*
Bristol, Alice Josephine,	*Canton, Pa.*,	German
Bristol, Susan Brown,	*Palo Alto*,	English
	A. B., Stanford, 1897.	
Brittan, Eleanor Ermil,	*Corning, Ia.*,	German *Sp.*
Bromfield, Beatrice Mary Ware	*San Mateo*,	English
Broughton, Marian Percival	*Marysville, Kans.*,	Physiology
Brower, Adna Treat,	*San Jose*,	Electrical Eng.
Brown, Carl Grover,	*San Francisco*,	History
Brown, George Willard,	*Portland, Or.*,	Economics *Sp.*
Brown, Harriett Henrietta,	*Palo Alto*,	Mathematics
Brown, John C.,	*Carthage, Mo.*,	Zoology
Brown, Joseph Grant,	*Stillman Valley, Ill.*,	Physics
Brown, Leonard Harvey,	*Palo Alto*,	Law
Brown, Mary Elizabeth,	*Kernville*,	English
Brown, Ora Lee,	*Seattle, Wash.*,	History
†Brown, Zaidee Mabel,	*Palo Alto*,	English
	A. B., Stanford, 1898.	

† Work completed in absentia.

Brune, Ernest Louis, *San Francisco*, Law
Brunson, Jessie, *Alhambra*, English *Sp.*
Brunton, Mary Dulley, *São Paulo, Brazil*, Romanic Lang.
Bryan, Richard, *Anacostia, D. C.*, Economics
Bryant, James Cullen, *Mayfield*, Mathematics
Buehner, Valentin, *Los Angeles*, German
Bullock, Newell Harris, *Pleasant Grove, Utah*, Education
A. B., Stanford, 1898.
Burcham, David, *Kelso, Wash.*, Mathematics *Sp.*
Burcham, John Samuel, *Salem, Or.*, Zoology *Sp.*
Burcham, James Taylor, *Salem, Or.*, Law
A. B., Stanford, 1897.
Burgess, Lela May, *Arlington Place*, German *Sp.*
Burkett, Joseph Miller, *Hailey, Idaho*, Civil Eng.
Burmister, Howard Coles, *Prescott, Ariz.*, Geology
Burwell, Leslie Moulthrop, *Palo Alto*, Education
A. B., Stanford, 1893; A. B., Harvard, 1894.
Bush, George William, *Redding*, Law
A. B., Stanford, 1899.
Buss, Hedwig Bertha, *San Francisco*, German
A. B., Stanford, 1899.
Butler, Joseph, *Point Reyes*, Physiology *Sp.*
Butler, Marie Antoinette, *Palo Alto*, English
A. B., Stanford, 1898.
Butterfield, Alice Olivia, *Wilcox, Ariz.*, History
Byrd, Jane Carroll, *Crawfordsville, Ind.*, English *Sp.*
Byrne, Walter Edward, *San Bernardino*, History
Byxbee, Blanche Beatrice, *Palo Alto*, English
A. B., Stanford, 1898.
Byxbee, John Fletcher, Jr., *Palo Alto*, Geology
Cadwallader, Bessum Rebecca, *San Jose*, Latin
Cairns, Walter Scott, *Lindsay*, English
Caldwell, Mary Lucile, *San Francisco*, English
Cameron, Harry Frank, *Wakefield, Mass.*, Civil Eng.
Campbell, Henry Avery, *Sausalito*, Civil Eng.
Campbell, William Pleasant, *Palo Alto*, Latin
Campbell-Johnston, Alex. Napier *Madera*, Law *Sp.*
Cannon, Jennie Vennerstrom, *St. Paul, Minn.*, Drawing
Ph. B., Hamline Univ., 1895.
Cannon, William Austin, *Washington, Mich.*, Botany
A. B., Stanford, 1899.
Cantwell, Charles Abraham, *Tulare*, Law
Card, Ernest Mason, *Tacoma, Wash.*, History
Carson, George Ryckman, *New Almaden*, Physiology *Sp.*
Carson, William Wilson, *Eureka*, Economics

Carter, Edwin R.,	*Des Moines, Ia.*,	Mathematics
Case, Helen Smith,	*Portland, Or.*,	Romanic Lang.
B. L., Univ. of Wisconsin, 1889.		
Castagnetto, George Allen,	*San Francisco*,	Physiology *Sp.*
Caswell, Georgia Alberta,	*Los Angeles*,	English
Cavallaro, Dominick Clifton,	*San Jose*,	Mathematics
Chadbourne, Edward Merriam,	*Los Angeles*,	Civil Eng.
Chambers, Charlotte Warren,	*San Jose*,	English
Chandler, Charles Strother,	*Baker City, Or.*,	Law
B. S., Oregon State Agr. Coll., 1895.		
Chandler, Fred Brewster,	*Elmira*,	History
Chandler, Katherine A.,	*San Francisco*,	Education
Chandler, Leo St. Clair,	*San Francisco*,	History *Sp.*
Chandler, Mary,	*Duluth, Minn.*,	History
Chapin, John Endicott,	*San Jose*,	Chemistry
Chapman, Anna Margaret,	*Riverside*,	Bionomics
Chappel, Halbert William,	*Washington, D. C.*,	Law
Charles, Shirley Mansfield,	*Palo Alto*,	English
Chase, Dorothy Hinsdale,	*Oregon City, Or.*,	Drawing *Sp.*
Chase, Raymond Eugene,	*Salt Lake City, Utah*,	Botany
Church, Lenoir Campbell,	*Boston, Mass.*,	Geology
Clark, Charles Lester,	*Live Oak*,	Electrical Eng.
Clark, Walter,	*Eden Prairie, Minn.*,	History
Cleary, Harriett Andrews,	*La Jolla*,	Latin
Cleaveland, Newton,	*Biggs*,	Physiology
Clinton, Edgar Marcellous,	*Polo, Ill.*,	Economics
Cloud, Roy Walter Noble Ernest,	*Redwood City*,	Education
Coblentz, Mary Ethel,	*Los Angeles*,	History
Cochran, George Thomas,	*Alicel, Or.*,	Law
Coffin, Bessie Rachel,	*Boulder, Colo.*,	German
A. B., Stanford, 1898.		
Coffin, James Gilman,	*Boulder, Colo.*,	Latin
Coldwell, Ethel Hunley,	*Modesto*,	Latin
B. L., Mills College, 1894.		
Coldwell, Orin Barber,	*Portland, Or.*,	Electrical Eng.
Cole, Alice May,	*San Francisco*,	Latin
Cole, Augusta Marie,	*Gilroy*,	History
Coleman, Cynthia Edna,	*Dixon*,	Latin
Coleman, George Albert,	*Pomona*,	Zoology
Coleman, Lulu Maude,	*Dixon*,	English
B. L., Napa College, 1896.		
Collins, Ray Merril,	*Bradford, Pa.*,	Geology
Cone, Elizabeth Hiett,	*Salinas*,	English
Cone, James Stone,	*Salinas*,	History

Conneau, Myrtie,	*Modesto*,	History
Connell, Lucy Ora,	*Santa Ana*,	English
Cook, Blanche Alberta,	*San Jose*,	History *Sp.*
Cook, Jessie Loring,	*San Jose*,	History
Cook, May L.,	*Sacramento*,	English
Cooke, Sorrie Lillian,	*Santa Ana*,	Education
Cooley, Arthur Edward,	*Cloverdale*,	Law
Cooper, Elizabeth Procter,	*San Jose*,	Physiology
Cooper, Kenneth Farra,	*Portland, Or.*,	Civil Eng.
Corbin, Elisha Lockhart,	*Union, Or.*,	Law
Corker, Lucy Alma,	*Salt Lake City, Utah*,	History
Cory, Sarah Ann,	*San Jose*,	Latin
Coulter, Mabel Annie,	*Salinas*,	English
Coulter, Mabel Given,	*Frankfort, Ind.*,	English *Sp.*
Coverley, John Harvey,	*Whittier*,	Law
Cowden, Dave Van Clief,	*San Jose*,	Law
Cowdery, Alice May,	*San Francisco*,	English
Cowles, Rheinart P.,	*Los Angeles*,	Chemistry
Cowperthwaite, Ellanore,	*Hill Top, Colo.*,	German
Cox, Alvin Joseph,	*College Park*,	Chemistry
Cox, Isaac Milton,	*Tulare*,	Education
A. B., Haverford Coll., 1892.		
Cox, Jessie Benten,	*Watsonville*,	English
Craig, Edward Joseph,	*San Diego*,	Law
Crandall, Wesley Clarence,	*Salt Lake City, Utah*,	Physiology
Cranston, William McGregor,	*San Francisco*,	Law
Cressey, George Albert,	*Modesto*,	Physiology
Cressey, William Cram,	*San Jose*,	Physiology
Crippen, John Herbert,	*Point Loma*,	Law
Crittenden, Alpheus Benjamin,	*Santa Clara*,	Law
Cronyn, Thoreau,	*Bernardston, Mass.*,	Latin
Cross, Charles Warren,	*East Oakland*,	Mechanical Eng.
Crow, Benjamin Stewart,	*San Jose*,	Law
Crummey, John David,	*Los Gatos*,	History
Cubberley, Helen,	*Palo Alto*,	German
Culver, Richard Keith,	*Palo Alto*,	Bionomics
Cummings, Frank J.,	*Petrolia*,	History
Currin, Margaret Ellen,	*Salem, Or.*,	Education
Curry, David Alexander,	*Redwood City*,	Latin
A. B., Indiana Univ., 1883.		
Curtis, Frank Duezze,	*Santa Clara*,	Chemistry
Cuthbertson, Sidney Miller,	*Manchester*,	Law
Cutten, Charles Pryde,	*Eureka*,	Law

Daggett, Benjamin F.,	*Black Bear*,	Geology *Sp.*
Daggett, John Stewart,	*Pasadena*,	Economics
Dale, Lincoln,	*Indianapolis, Ind.*,	Education
	A. B., Indiana Univ., 1895.	
Daly, Kathryn Helen,	*San Francisco*,	History *Sp*
Dannals, Marion Emma,	*San Diego*,	Mathematics
Dart, Sibyl Louise,	*Rock Island, Ill.*,	Latin
Davenport, Will Romack,	*Des Moines, Ia.*,	Drawing *Sp.*
Davidson, Cassie Aleda,	*Lemon Grove*,	History
Davies, Rees Oliver,	*Neath, Pa.*,	Law
	A. B., Stanford, 1899.	
Davis, Delos Darwin,	*Mayfield*,	Education *Sp.*
Davis, Everly Mahin,	*San Pedro*,	Education
Davis, John Fletcher,	*Sacramento*,	Law *Sp.*
Davis, Olive Percy,	*Sycamore*,	English
Davis, Rebecca Louise,	*Sycamore*,	History
Dawson, Edgar Blasdel,	*St. Helena*,	Physiology
Day, Aileen Lolita,	*San Francisco*,	Romanic Lang.
Day, Homer Leland,	*San Francisco*,	Physiology
Day, William Clarence,	*Santa Barbara*,	Economics
Deasy, Michael,	*Mendocino*,	Law
Decarli, Milo Charles,	*Waddington*,	Economics
De Haven, Lucie Gates,	*Mayfield*,	Physiology
Denman, Anna Mary,	*Corvallis, Or.*,	English
Dibble, Nellie Maria,	*Dakota City, Nebr.*,	History
	A. B., Stanford, 1898.	
Dickson, Blanche,	*Eureka*,	Hygiene *Sp.*
Dickson, William Ernest,	*Eureka*,	Law
Diggles, Eliza Marietta,	*Palo Alto*,	Education
Diggles, Grace Pattison,	*Palo Alto*,	History
Diggles, Robert Newton,	*Palo Alto*,	Chemistry
Dilatush, Carrie Maude,	*Robbinsville, N. J.*,	History
Dinturff, Caroline Belle,	*Penn Yan, N. Y.*,	Botany
	A. B., Vassar, 1891.	
Dittmar, Carl Frederic,	*Redding*,	Law Sp.
Diviny, Thomas Matthew,	*Sacramento*,	Law
Dixon, James Le Roy,	*Needham, Mass.*,	Classical Philol.
Dodge, Ethel Allen,	*Redwood City*,	Latin
Doeg, Harold Hope,	*Santa Barbara*,	Romanic Lang.
Dole, Charles Sumner,	*Riverside*,	Law
Dole, Emily Charlotte,	*Riverside*,	German
Donaghho, John Shape,	*Parkersburg, W. V.*,	Economics
	A. B., Marietta Coll., 1889.	
Doren, Elizabeth Bragdon,	*Dayton, O.*,	Economics

Dorn, Frederick William,	*Kelseyville*,	English
Dorsey, Florence Eugenia,	*San Francisco*,	Entomology
A. B., Stanford, 1899.		
Doughty, Frank,	*Palo Alto*,	Mathematics
Downing, Helen,	*Los Angeles*,	Mathematics
Downing, William Everts,	*Suisun*,	Physiology
Drake, Frederick Henry,	*Portland, Or.*,	Law
Drew, Annie Mabelle,	*Westford, Mass.*,	Zoology
Dryer, George William,	*Santa Ana*,	Law
Dryer, Katherine,	*Santa Ana*,	German
Ducker, Vida Peers,	*Mayfield*,	Physiology
Dulley, Frederick Louis,	*Saô Paulo, Brazil*,	Romanic Lang.
A. B., Stanford, 1897.		
Dumars, Henry Dunn,	*Washington, D.C.*,	Mech. Eng. *Sp.*
Dunbar, Florence,	*San Diego*,	English
Duncan, Edith Vernon,	*Healdsburg*,	Education
Dunne, T. Morris,	*Portland, Or.*,	Chemistry
Durfee, Abbie Birch,	*Orland*,	History
Durfee, Ulysses Grant,	*Palo Alto*,	Bionomics
Durrell, Harold Woodman,	*Pasadena*,	Chemistry
Dutton, Harry A.,	*Elsinore*,	Botany
Dyer, George Sterling,	*Oroville*,	Geology
Dyer, Laura Elizabeth,	*Boston, Mass.*,	History
Dyer, Susie Louise,	*Palo Alto*,	Physiology
Earl, Clara Eloise,	*Napa*,	History
Eaton, William Augustus,	*Trafalgar, Ind.*,	Physiology
Eberhard, Emilie,	*Santa Clara*,	English
Edlin, William,	*San Francisco*,	Law *Sp.*
Edmonds, Glenn,	*Los Angeles*,	Law *Sp.*
Edwards, Arthur Jordan,	*Minneapolis, Minn.*,	Physics
Edwards, Harry James,	*San Diego*,	History
Edwards, Haven Wilson,	*San Jose*,	History
Egan, Ignatius Joseph,	*Alameda*,	Economics
Elias, Solomon Philip,	*Modesto*,	Law
Elkus, Charles de Young,	*San Francisco*,	Law
Elmore, Jefferson,	*Palo Alto*,	Latin
A. B. and A. M., Stanford, 1895.		
Emerson, Alice Lizzie,	*Palo Alto*,	Botany *Sp.*
Emerson, Florence,	*Palo Alto*,	Physiology
Emerson, George Irving,	*Centerville*,	Electrical Eng.
Emerson, Ralph Damon,	*Palo Alto*,	Mechanical Eng.
Emery, Lewis, 3d.,	*Bradford, Pa.*,	Geology
Emery, Laura Johnson,	*Richland*,	German
English, John Francis, Jr.,	*San Francisco*,	Law

Erb, William Maurice,	*Chemainus, B. C.*,	Economics *Sp.*
Evans, Genevieve V.,	*San Jose*,	Latin
Everett, Henry Brown,	*Sutter*,	Education *Sp.*
Everett, Laura Bell,	*Sutter*,	English
Everett, Ralph Waldo,	*Sutter*,	Latin
Fairchild, Emelie Celia,	*Oakland*,	English *Sp.*
Faris, Clifton Maupin,	*Sacramento*,	Chemistry
Farnsworth, Millard Allen,	*San Francisco*,	Electrical Eng. *Sp.*
Farnum, Edward Truesdale,	*Lompoc*,	Chemistry
Ferguson, Amy Parker,	*Stockton*,	English
Ferguson, Grace Hamilton,	*Palo Alto*,	Romanic Lang.
Ferguson, James,	*Olympia, Wash.*,	History
Ferguson, John William,	*Menlo Park*,	Electrical Eng.
Ferguson, Louis Bangs,	*Cedar Rapids, Ia.*,	Physiology
Fernald, Reginald Goodwin,	*Santa Barbara*,	Law
Ferrari, Louis,	*San Francisco*,	Law
Fickert, Charles Marron,	*Bakersfield*,	History
A. B., Stanford, 1898.		
Fickes, Helen Elizabeth,	*Steubenville, O.*,	History
Fickes, Mary Frances,	*Steubenville, O.*,	German
Field, Gertrude,	*Santa Clara*,	Economics
Field, Robert Estee,	*St. Louis, Mo.*,	Mechanical Eng.
Filcher, Ralph Emerson,	*San Francisco*,	Economics
Fisher, Forrest Starkey,	*The Dalles, Or.*,	Law
Fisher, Howard Frederick,	*Calistoga*,	Chemistry *Sp.*
Fisher, Ralph Stephen,	*The Dalles, Or.*,	Physiology
Fisher, Walter Kenrick,	*Washington, D. C.*,	Zoology
Fleming, Harry Livingston,	*Bloomington, Ill.*,	Economics
Flinn, Anna Wyman,	*Albany, Or.*,	English
B. S., Albany Coll., 1892.		
Flint, E. Royal,	*Palo Alto*,	Latin
Flint, Maude,	*Palo Alto*,	Greek
A. B., Stanford, 1897, A. M., 1898.		
Fogg, Frank,	*Tacoma, Wash.*,	English
Folsom, David Morrill,	*White Sulphur Springs, Mont.*,	Math.
†Ford, Cornelia Pierson,	*Los Angeles*,	German
A. B., Stanford, 1898.		
Forsyth, George Thomas,	*Salinas*,	Mechanical Eng. *Sp.*
Fosdick, Archibald Morris,	*Palo Alto*,	English
Foster, Frank H.,	*Los Gatos*,	Law
Foster, Hugh Gwyn,	*Coronado*,	Law
Foulkes, Glenn,	*Portland, Or.*,	Chemical Eng. *Sp.*
Fowler, Una Eugenia,	*Los Angeles*,	English

† Work completed in absentia.

Fox, Ethel Thornton,	*Redwood City,*	English
Fox, Francis St. Joseph,	*Red Lodge, Mont.,*	Economics
Fox, Lockey,	*Red Lodge, Mont.,*	German *Sp.*
France, Lucy Mabel,	*Oakland,*	Latin
†Francis, George Horton,	*Napa,*	History
A. B., Stanford, 1898.		
Franklin, Arthur Chester,	*San Francisco,*	Economics
Fraser, Anna Graeme,	*San Jose,*	History
Fraser, Effie,	*Crowley, La.,*	Latin
A. B., Waynesburg Coll., 1892.		
Free, Arthur Monroe,	*Mayfield,*	Law
Freeman, Lewis Ransom,	*Pasadena,*	Geology
French, Clara Graves,	*Monmouth, Or.,*	English
Friedman, Henry A.,	*San Francisco,*	Economics
Frisselle, Ralph D.,	*Bakersfield,*	Hygiene *Sp.*
Frost, Everard Charles,	*Maryville, Mo.,*	Chemistry
A. B., Stanford, 1899.		
Fuller, Marion,	*San Mateo,*	English
Gaches, Samuel Francis,	*La Conner, Wash.,*	Law
Gaddis, Fletcher Eugene Allen,	*Santa Rosa,*	Education
Gage, George Guilford,	*Oakland,*	Economics
Gamer, Albert Cylvester,	*San Jose,*	Chemistry
Gannett, Mary Chase,	*Washington, D. C.,*	Zoology
Gardiner, Ernest Percy,	*Everett, Wash.,*	English
Garibaldi, Kathryne Elvira,	*Merced,*	Latin
Garner, Cora Ettie,	*Hollister,*	History
Garner, Lettie Maude,	*Hollister,*	Physics
Gavin, John William,	*Menlo Park,*	Latin
A. B., Yale University, 1885.		
Geis, Helen Dudu,	*Fresno,*	German
Geissler, Arthur Dorman,	*San Francisco,*	Romanic Lang.
Gelatt, Iva A.,	*San Jose,*	English
George, Carolyn,	*College Park,*	Zoology
George, Mary Wilson,	*College Park,*	Psychology
A. B., Stanford, 1899.		
Giddings, Charles Nelson,	*Ogden, Utah,*	Chemistry
Giesea, Frederick Augustus,	*Stockton,*	Economics
Gildersleeve, Joseph Burt,	*Boston, Mass.,*	Romanic Lang.
Gill, Maryland Elizabeth,	*Oakland,*	German
Gillespie, Claude Bailey,	*Palo Alto,*	Law
Gillette, Benjamin Taswell,	*Los Angeles,*	Chemistry
A. B., Stanford, 1899.		
Gilman, Charles Edward,	*Palo Alto,*	Geology
Gilman, Grace Clyde,	*San Diego,*	German

† Work completed in absentia.

Gilman, Philip Kingsnorth,	*Palo Alto,*	Physiology
Gilman, Ralph Edson,	*San Diego,*	Electrical Eng.
Givens, John Alfred,	*Blackfoot, Idaho,*	Physiology *Sp.*
Gleason, Charles Bertie,	*San Jose,*	Latin
A. B., Harvard Univ., 1885; A. M., 1886.		
Goetz, Adolph Frederick,	*Glendora,*	Education
Goodhue, Carrie Amanda,	*Oakland,*	German *Sp.*
Goshen, Anne Morris,	*Lafayette Hill, Pa.,*	Education
B. L., Univ. of Michigan, 1895.		
Grant, Edna May,	*Sacramento,*	History
Gray, Charles Alfred,	*San Jose,*	Law
Gray, Ida,	*Suisun,*	Education
Gray, Thomas S.,	*Palo Alto,*	Economics
Greeley, Arthur White,	*Berkeley,*	Zoology
A. B., Stanford, 1898.		
Green, Paul D.,	*Rushville, Ind.,*	History
Greene, Mary Jean,	*Santa Cruz,*	Education
Greenebaum, Fred Henry,	*San Francisco,*	Law
Greenleaf, Charles Hunt,	*Palo Alto,*	Romanic Lang.
A. B., Stanford, 1898.		
Gregory, Linden Irwell,	*Palo Alto,*	Economics
Gregory, Thomas T. C.,	*Suisun,*	History
Gridley, Kate Louise,	*Pacific Beach,*	Latin
Grigsby, John Livingston,	*Coatsburg, Ill.,*	Law *Sp.*
Grigsby, Lilian Hardman,	*Tulare,*	English
Grunsky, Herman Washington,	*Stockton,*	Economics
Gurnee, Inez Ellen,	*Appleton, Wis.,*	English
Ph. B., Lawrence (Wis.) Univ., 1894.		
Hadden, Elizabeth,	*Oakland,*	English
Hadden, Mary Anne,	*Oakland,*	Bionomics
Hadley, Roy Overman,	*New Whatcom, Wash.,*	English
Haehl, Harry Lewis,	*San Francisco,*	Geology
Haffey, James Leroy	*Denver, Colo.,*	Law
A. B., Stanford, 1899.		
Hahn, Otto Henry,	*San Francisco,*	Law
Hale, Martha,	*San Diego,*	History
Hale, Robert Taylor,	*Pasadena,*	Mathematics
Hall, Effa,	*Dixon,*	English
Hall, Elmon Lawrence,	*Yokohama, Japan,*	Chemistry
Hall, Laura,	*San Diego,*	History
Hall, Theodore, Jr.,	*Ashtabula, O.,*	Economics
Hamilton, Addie Louise,	*Hollister,*	Latin
Hamilton, Frank Dana,	*Santa Clara,*	Education *Sp.*
Hamilton, Joseph Reuben,	*King City,*	English

Hamilton, Thomas,	*San Diego*,	Romanic Lang.
Hamilton, Walter Raleigh,	*Westley*,	Civil Eng.
Hammerson, Alice Louise,	*Belmont*,	English
Hardy, Samuel Percy,	*Oakland*,	Economics
Harkins, Charles Lorin,	*Menlo Park*,	Electrical Eng.
Harkins, Mary Santa Barbara,	*Menlo Park*,	History
Harkins, William Draper,	*Escondido*,	Chemistry
Harlan, Orren Arthur,	*College Park*,	Geology *Sp.*
Harlow, Alice Stetson,	*Los Gatos*,	English
Harris, Josephine,	*Helena, Mont.*,	Law
Harris, May,	*San Francisco*,	History
Harris, Rosalie,	*San Francisco*,	English
Hart, Ida,	*Merced*,	Latin
Harter, Lloyd Elliott,	*San Jose*,	Economics
Hartnell, Ella Rachel,	*Salinas*,	English
Hartson, Ethel,	*Napa*,	English
Hartwell, Robert William,	*Kirkwood, Ill.*,	English *Sp.*
Haskell, Jessie Judson,	*Bradford, Pa.*,	History
Haslacher, Alfred B.,	*Oakdale*,	Economics
Hatch, Irvin Clifton,	*Redwood City*,	German
A. B., Napa Coll., 1892; A. M., 1896.		
Hatch, Paul Carl,	*Oregon, Ill.*,	Civil Eng.
Hathorne, Eleanor Hollingsworth,	*Barre, Mass.*,	History
Havens, Harold,	*Oakland*,	Geology
Hawley, Clarence Edgar,	*Saticoy*,	Education
Hayden, Carl Trumbull,	*Tempe, Ariz.*,	Economics *Sp.*
Hayden, Edwin Andrew,	*Helena, Mont.*,	Psychology
B. S., Univ. of Wis., 1894.		
Hayes, Thomas Alonzo,	*Ashland, Or.*,	Education
Hays, Willis Barnum,	*Pasadena*,	German
Healey, John Edward,	*Ventura*,	History
Hearne, Eleanor Virginia,	*San Diego*,	English
A. B., Stanford, 1899.		
Heaslip, Mae,	*Los Angeles*,	English
Heinemann, Ada Julia,	*Los Angeles*,	Economics
Heiner, Lawrence Andrew,	*Redwood City*,	Education
Heller, Edmund,	*Riverside*,	Zoology
Hemphill, Harriet Margaret,	*Campbell*,	Mathematics
Henney, Bertha,	*Santa Cruz*,	Botany
Henry, Bessie Edson,	*San Jose*,	English
Henry, Emilie Alberta,	*Salem, Or.*,	Education
Henry, Helen Natalie,	*Canton, China*,	German
Henry, William Fiske,	*Dixon*,	English

Hensey, William Henry,	*Farmingdale, Ill.*,	English *Sp.*
Herrold, Charles David,	*San Jose*,	Physics
Herrold, Roy Scott,	*San Jose*,	Physiology
Herzinger, Leo Agnes,	*Ouray, Colo.*,	English
Hicks, Alden Rhodes,	*Scottville, Ill.*,	Law
Hicks, Martha Elizabeth,	*Sacramento*,	Latin
Higley, Brodie Gilman,	*Hartford, N. Y.*,	History
	A. B., Stanford, 1899.	
Hill, Harrison Wesley,	*Redlands*,	Geology
Hill, Howard Gilman,	*Redlands*,	Physiology
Hinman, Frank,	*Portland, Or.*,	Physiology
Hobson, Edna Mary,	*Eastland*,	English
Hodge, Mary Ashnum,	*San Diego*,	Physiology
Hodges, Lu Amy,	*Arroyo Grande*,	English
Hodgson, Eunice Hazel,	*San Francisco*,	Education
Hogevoll, Swan Taraldson,	*Palo Alto*,	Law
Hogue, Clara Elizabeth,	*Santa Paula*,	Physiology
Hogue, Helen May,	*Albany, Or.*,	German
Holley, Harry Hall,	*Palo Alto*,	Geology
Holly, Ernest Deforest,	*Dixon*,	Economics
Holmes, Emily May,	*San Jose*,	Zoology
Holmes, Helen Lathrop,	*Tacoma, Wash.*,	English
Holmes, John Elmer,	*Tacoma, Wash.*,	Geology
Holt, William Armfield,	*San Jose*,	Physiology
Hooper, Kate Alaska,	*San Bernardino*,	English
Hoover, Bessie Belle,	*Gilroy*,	English
Hoover, May,	*Salem, Or.*,	Hygiene
Hoover, Oliver Stanton,	*Cedron, O.*,	Mathematics
	A. B., Stanford, 1899.	
Hoover, Theodore,	*Palo Alto*,	Geology
Hopper, Bernal Mirza,	*Del Rey*,	Mathematics
Hopper, Florence,	*Los Angeles*,	Latin
Horine, Ella Webb,	*Palo Alto*,	Latin
Hough, William Edwin,	*San Francisco*,	Romanic Lang.
Houghton, Emelie Ray,	*Tulare*,	English
Howard, Delle,	*Cloverdale*,	History
†Howard, Fred Sisco,	*Baldwinsville, N. Y.*	History
	A. B., Stanford, 1899.	
Howard, Joseph Henry,	*Bloomington, Ind.*,	Latin
	A. B., Indiana Univ., 1888; A. M., 1890.	
Hudson, William George, Jr.,	*Watsonville*,	Law
Hull, Edward Oscar,	*Pasadena*,	Physiology
Hull, Warren,	*Palo Alto*,	Law

† Work completed in absentia.

Hurlburt, May,	*New York, N. Y.*,	English *Sp.*
Hurlbut, Edward Harwood,	*Redwood City*,	Law
Hurlbut, Howard Charles,	*Redwood City*,	Mathematics
Hyde, James Macdonald,	*Palo Alto*,	Geology
Hyde, Lillian Seraphine,	*Palo Alto*,	Bionomics
Ibs, Ella,	*San Diego*,	Physiology
Ibs, Matilda,	*San Diego*,	English
Inouye, Junzuburo,	*Iyo, Japan*,	Mathematics
Irwin, Wallace Admah,	*Denver, Colo.*,	Latin
‡Irwin, William Henry,	*Denver, Colo.*,	English
Jack, Mary Catherine,	*Pacific Grove*,	English *Sp.*
Jackson, Byron Nicholson,	*Wilkesbarre, Pa.*,	Geology
Jackson, Elvenia Josephine,	*San Francisco*,	German
James, Edwin,	*Paso Robles*,	Civil Eng.
James, Laura Garner,	*College Park*,	English
A. B., Stanford, 1897.		
Jamison, Rachel,	*Santa Rosa*,	Physiology
Jarnick, Joseph,	*Almond, Wis.*,	Latin
†Jeffs, Alexander Samuel,	*Kent, Wash.*,	Law
A. B., Stanford, 1899.		
Jevne, Burdette,	*Los Angeles*,	Economics *Sp.*
Jewell, Lillian Dixon,	*Palo Alto*,	Hygiene *Sp.*
Johnson, John Everett,	*San Marcial, Mexico*,	Economics
Johnston, Fannie Ella,	*College Park*,	Education
B. S., Cornell Coll. (Ia.), 1884; M. S., 1887.		
Jones, Beatrice,	*Alexandria, Ind.*,	Education *Sp.*
Jones, Caroline Dana,	*Oakland*,	Latin *Sp.*
Jones, Herbert Coffin,	*College Park*,	Law
Josephi, Hawthorne Murray,	*Portland, Or.*,	Electrical Eng.
Joss, Horace Wilder,	*Red Wing, Minn.*,	Geology
Joyce, Fred Lawerance,	*San Francisco*,	Physiology
Kadderly, George James,	*Portland, Or.*,	Physiology *Sp.*
Kahn, Joseph Henry,	*Oakdale*,	Economics
Kalloch, Belle,	*San Francisco*,	English
Karr, Frank,	*Heyworth, Ill.*,	Law *Sp.*
Keatinge, Percy Ridgeley,	*Palo Alto*,	Civil Eng.
Keefe, Anna Elizabeth,	*San Jose*,	History
Kellogg, Charles Mitchell,	*Emporia, Kans.*,	Entomology
Kellogg, Emma,	*Palo Alto*,	English *Sp.*
Kellogg, Estelle Lucinda,	*Palo Alto*,	Latin
Kellogg, George Gibbs,	*Hoquiam, Wash.*,	Economics

† Work completed in absentia.
‡ In absentia.

Kelly, Alice May,	*Palo Alto,*	Physiology *Sp.*
Kelly, Virginia Mabel,	*Palo Alto,*	Physiology
Kendall, Arthur Porter,	*Petaluma,*	Geology
Kenely, Katherine Elizabeth,	*Princeton, Minn.,*	History
Kenely, Winifred,	*St. Cloud, Minn.,*	Bionomics
Kenney, Charles Edmond,	*San Pedro,*	Electrical Eng. *Sp.*
Kerr, William Morrison, Jr.,	*Ironton, O.,*	History
Kidder, Marie Margaret,	*Pasadena,*	History
Kimball, Elsie,	*Palo Alto,*	History
Kimball, Sherman,	*Pasadena,*	Chemistry
Kimble, May G.,	*Los Angeles,*	Chemistry
King, Annie Rose,	*Sacramento,*	History
King, Cameron Haight, Jr.,	*San Francisco,*	Economics
King, Mabel L.,	*San Luis Obispo,*	Drawing *Sp.*
Kingsbury, Susan Myra,	*San Francisco,*	History
	A. B., Univ. of Pacific, 1890.	
Kinney, Harriet Morgan,	*Astoria, Or.,*	English
Kleiser, John Henry,	*Cloverdale,*	Geology
Knecht, Carl Emil,	*Los Angeles,*	Geology
Knepper, Earl H.,	*Los Angeles,*	Geology
Knepper, Jessie,	*Los Angeles,*	Mathematics
Knoche, Edward Louis Herman,	*San Jose,*	Botany
Koda, Kisatsuchi,	*Yamaguchi, Japan,*	Law
Koontz, James Alva,	*Mountain Home, Id.,*	Mathematics
Koontz, Jessie Annette,	*Mountain Home, Id.,*	Education
Kraemer, Herman,	*San Bernardino,*	German
	A. B., Univ. of Missouri, 1896.	
Kummer, Blanche,	*San Jose,*	English
Kummer, Clara May,	*San Jose,*	Latin
Kummer, Grace Olivia,	*San Jose,*	Romanic Lang.
Kuns, Margaret Effa,	*McPherson, Kans.,*	Hygiene
Kuwana, Shinkai Inakichi,	*Hukuoka, Japan,*	Entomology
Lake, Viola May,	*Santa Cruz,*	Botany
Lanagan, James Francis,	*Denver, Colo.,*	Latin
Langnecker, Harry Leslie,	*New Brighton, Pa.,*	Bionomics
Lathrop, Helen,	*St. Helena,*	English *Sp.*
Lathrop, Laura Myrtle,	*Hollister,*	Romanic Lang. *Sp.*
Lathrop, Winnona,	*Hollister,*	History
Lauck, Clara Louise,	*Santa Clara,*	Hygiene
Law, J. Eugene,	*Lake Mills, Ia.,*	Law
Lawrence, Cornelia,	*Tacoma, Wash.,*	Romanic Lang.
Lawshé, Walter Delany,	*Tacoma, Wash.,*	Drawing
Lawson, Lawrence Miller,	*Pasadena,*	Civil Eng.

Lea, Homer,	*Los Angeles*,	Economics
Lehners, Carl Herman,	*San Francisco*,	Physiology
Leib, Frank Allen,	*San Jose*,	English
Leiter, Otho Clarke,	*Portland, Or.*,	History
Leiter, Rufus Albertus,	*Portland, Or.*,	Law
Leland, Harry Russell,	*Toledo, O.*,	Geology *Sp.*
Lemmon, Allen Bosley, Jr.,	*Santa Rosa*,	Geology
Lesley, Elizabeth,	*Santa Ana*,	Mathematics
Leventritt, Mortimer Clifford,	*San Francisco*,	History
Levy, Andre Bower,	*San Francisco*,	Physiology
Levy, Walter Heydenfeldt, Jr.,	*San Francisco*,	Law
Lewis, Elizabeth Babette,	*San Diego*,	German
Lewis, John Howard,	*Portland, Or.*,	Civil Eng.
Lewis, Winford Lee,	*Gridley*,	Law
L'hote, Roy Dutton,	*Palo Alto*,	Mathematics *Sp.*
Libby, William Sumner,	*Pomona*,	Psychology
A. B., Stanford, 1896.		
Lillard, Jeremiah Beverley,	*Santa Barbara*,	Physiology
A. B., Stanford, 1899.		
Lloyd, Edith,	*Ben Lomond*,	English
Lockey, Mary Isabel,	*Helena, Mont.*,	German
Lockey, Richard, Jr.,	*Helena, Mont.*,	History
Loeser, Katherine Foster,	*El Paso, Texas*,	Chemistry *Sp.*
Loeser, Robert M.,	*El Paso, Texas*,	Chemistry *Sp.*
Logan, Harry Gaylord,	*Phœnix, Ariz.*,	Physiology
Longley, John Artemas,	*Palo Alto*,	Romanic Lang.
A. B., Stanford, 1896; A. B., Harvard, 1896.		
Lord, Charlotte Mable,	*Palo Alto*,	History
Losse, Vivian Beatrice,	*San Jose*,	English
Lougheed, Herbert Edgar,	*Los Angeles*,	English *Sp.*
Lousley, Vincent Daniel,	*Santa Barbara*,	Chemistry
Love, Nelly,	*Frankfort, Ind.*,	Education *Sp.*
Lucas, Harry Clifford,	*Santa Cruz*,	Economics
Lucy, Estelle Edna,	*Vallejo*,	English
Lurch, Jacob B.,	*Cottage Grove, Or.*,	Physiology
Lynn, Ellen Utley,	*Cambria*,	English
Lyon, Addi Warren,	*Artesia*,	Electrical Eng.
Lyon, Dorsey Alfred,	*Palo Alto*,	Chemistry
A. B., Stanford, 1898.		
Mabrey, Eli Nelson,	*Palo Alto*,	Law
Mabury, Laura Nevada,	*San Jose*,	English
McCormick, Manson Fielding,	*Easton*,	Education
McCraken, Robert Guy,	*Portland, Or.*,	Electrical Eng.
McCroskey, Benjamin Barratt,	*Hollister*,	Economics

McCurdy, Karl,	*Rucker,*	History
McDougald, George Archibald,	*Stockton,*	Electrical Eng.
McDougald, Louise,	*Stockton,*	Romanic Lang.
McDougald, Mary E.,	*Stockton,*	English
McDowell, John Ezra,	*Ashland, O.,*	Economics
McFadden, Elizabeth,	*Santa Ana,*	Physiology
McFadden, John Andrew,	*Santa Ana,*	Geology
McFadden, Thomas Lewis	*Placentia,*	History
McGeorge, Verne Adrian,	*Antioch,*	Education
†McGregor, Richard Crittenden,	*Denver, Colo.,*	Ethics
A. B., Stanford, 1898.		
McInnis, William Carr,	*San Francisco,*	Law
McIntosh, James,	*Palo Alto,*	Physics
A. B., Stanford, 1898.		
McIntosh, William Peter,	*Redlands,*	History
Mackay, Minnie Laurie,	*Santa Clara,*	Botany
McKee, Georgia,	*San Jose,*	Romanic Lang.
Mackinnon, Duncan,	*Oakland,*	Education
Maclaren, Miriam Evalyn,	*San Jose,*	History
A. B., Stanford, 1897.		
McLaughlin, Roy Parmelee,	*Sebastopol,*	Geology
Maclean, Donald Gray,	*San Francisco,*	German
McLellan, Ethel Cora,	*San Diego,*	History
McMillan, Helen,	*San Diego,*	English *Sp.*
McMurtry, Belle Stuart,	*Los Gatos,*	History
McNee, Alexander Edward,	*San Francisco,*	Physiology
Madden, Martha Elizabeth,	*Milton, Pa.,*	Economics
Maddock, George Frederick,	*Mayfield,*	Electrical Eng. *Sp.*
Madsen, Peter,	*Oakland,*	German *Sp.*
Mailer, Jessie Willis,	*Santa Rosa,*	Physiology
Maize, Sidney Derby,	*San Diego,*	History
Mann, Harold Richard,	*San Francisco,*	English *Sp.*
Maples, Edward Thompson,	*Bakersfield,*	Economics
Mapson, Ora Aurilla,	*Nestor,*	Education
Markham, Marie,	*Pasadena,*	Romanic Lang.
Marrack, Cecil Mortimer,	*San Francisco,*	English
Martin, Clara Louise,	*Reno, Nev.,*	Physiology
Martin, John Jeffrey,	*Redwood City,*	History
A. B., Univ. of Pacific, 1884.		
Martin, Mary Viola,	*Woodland,*	Physiology
Marx, Joseph,	*Pasadena,*	Chemical Eng.
Mathews, Ellen,	*Los Angeles,*	Zoology
Mathews, Julia,	*Los Angeles,*	English *Sp.*
Mathews, Helen Lucy,	*Salem, Or.,*	History

Maxwell, William Clarence,	*Woodland*,	Physiology
Mayeda, Frank Kinichiro,	*Tokio, Japan*,	Zoology
Maytham, Frank,	*Buffalo, N. Y.*,	Economics
Meiklejohn, David Forbis,	*Butte, Mont.*,	Chemistry
Mellish, Ida May,	*Pasadena*,	Drawing *Sp.*
Meredith, Mary California,	*San Luis Obispo*,	Latin
Merriam, Cyrus Lincoln,	*Denver, Colo.*,	Chemistry
Merritt, Mary Elizabeth,	*Woodland*,	Romanic Lang.
Merritt, Rowena,	*Woodland*,	German
Metteer, Charles Franklin,	*Pacific Grove*,	Law
Meyer, Catherine Bertha,	*Santa Rosa*,	German
Meyer, Raymond Daniel,	*Carbon, Wyo.*,	Civil Eng.
Meyrick, Mary Lily,	*Palo Alto*,	English
	A. B., Stanford, 1899.	
Miller, George Amos,	*Hanford*,	Economics
Miller, Etta Laura,	*Napa*,	English
	A. B., Smith Coll., 1892; A. M., 1897.	
Mills, Helen Hall,	*Menlo Park*,	Entomology *Sp.*
Mills, Louis David,	*Menlo Park*,	Geology
Mini, Joseph, Jr.,	*Los Gatos*,	Electrical Eng.
Minta, Mary Elizabeth,	*Stockton*,	German *Sp.*
Mitchel, Edgar Lillian,	*Fowler*,	Education
Miyake, Hanzaburo,	*Okayama, Japan*,	Chemistry
Moe, Emily Elvira,	*Escondido*,	Latin
Moeller, Albert Lucien,	*San Francisco*,	Chemistry
Monteith, Andrew,	*San Francisco*,	History
Montgomery, Dewitt,	*Placentia*,	English
Moore, Jessie Archibald,	*Los Angeles*,	Chemistry
Mordecai, Alfred,	*Springfield, Mass.*,	Civil Eng. *Sp.*
Mordecai, George Washington, Jr.,	*Madera*,	Law
Morehead, Alma,	*Chico*,	Mathematics
Morgan, Edward Ellsworth,	*Portland, Or.*,	Law
Morgan, Winifred June,	*Oakland*,	Zoology
Moriarty, Willis Harrison,	*Emlenton, Pa.*,	History
Morris, Earl Leonard,	*Santa Ana*,	German
Morris, George Carleton,	*Salem, Or.*,	Law *Sp.*
Morris, William Alfred,	*Salem, Or.*,	History
Morrison, Sara Graham,	*Sharon, Pa.*,	History
Morse, Ada B.,	*Santa Clara*,	Romanic Lang.
Morse, Lucy Mary,	*Cleveland, O.*,	Education
Moses, Mabelle Louisa,	*Boston, Mass.*,	History
Mosher, Katherine Anthea,	*Long Beach*,	Latin
	A. B., Stanford, 1899.	

Moulton, Dudley,	*Palo Alto,*	Zoology
Moulton, Josephine,	*Palo Alto,*	English
Moulton, Mary Esther,	*Palo Alto,*	Botany
Mount, Helen Viola,	*Palo Alto,*	Romanic Lang.
	A. B., Stanford, 1899.	
Mourot, Louise Anna,	*Redwood City,*	English
Mugler, Eleanor Caroline,	*Merced,*	Latin
Muller, Leo Gerard du Celliée,	*Merced,*	Mathematics *Sp.*
Mullins, Joanna Muriel,	*Mayfield,*	History
Munday, Helen Day,	*Los Angeles,*	English
Murgotten, Francis Clark,	*San Jose,*	Classical Phil.
Murphy, Chester Griffin,	*Salem, Or.,*	Law
Murphy, Cornelius Ramund,	*San Francisco,*	Law
Murphy, Edward Mason,	*Portland, Or.,*	Mechanical Eng.
Naftzger, Frederick Earle,	*Los Angeles,*	Civil Eng.
Nakamura, Hatsuwo,	*Tokio, Japan,*	Chemistry
	A. B., Stanford, 1898.	
Needles, Edna R.,	*Palo Alto,*	English *Sp.*
Nelson, Andrew Edward,	*Paso Robles,*	German
Newburg, Mervyn Jacobs,	*San Bernardino,*	Chemistry
Newsom, John Flesher,	*Elizabethtown, Ind.,*	Geology
	A. B., Indiana Univ. 1891; A. M., Stanford, 1892.	
Nichols, Bernard Charles,	*Grand Rapids, Mich.,*	Economics
Nichols, Walter Edmund,	*Hoboken, N. J.,*	Economics
Nickel, Louis,	*Del Norte, Colo.,*	Geology *Sp.*
Nicolas, Virginia Noelie,	*Fullerton,*	Romanic Lang.
Nishikawa, Kotaro,	*Hikone, Japan,*	Economics
Noble, Irvine Morrison,	*Redlands,*	Chemical Eng.
North, Edmund David,	*Los Angeles,*	Geology
Noteware, Philip Joseph,	*Chicago, Ill.,*	Geology
Nourse, John Thomas, Jr.,	*Santa Ana,*	Law
Nugent, Charles Rhodes,	*San Jose,*	Classical Phil.
	Ph. D., Univ. of Wooster, 1898.	
Nutter, Edward Hoit,	*Mayfield,*	Geology *Sp.*
Obermüller, Frank,	*St. Geneviève, Mo.,*	Geology *Sp.*
O'Farrell, Edith,	*San Diego,*	Education
Ogier, Adelaide Reid,	*San Jose,*	History
Ohara, Henlly Shoichi,	*Chitaken, Japan,*	Economics
Olcovich, Viola,	*San Francisco,*	Physiology
Olshausen, Bruno Adolph,	*Los Angeles,*	Chemistry *Sp.*
Ortschild, John Francis,	*Portland, Or.,*	Physiology
Osborn, Clyde Hull,	*Denver, Colo.,*	Law
Osborn, John Burchard,	*San Diego,*	Latin
Osborne, John Walter,	*San Jose,*	Psychology *Sp.*

‡Osgood, Wilfred Hudson,	*Washington, D. C.*,	Zoology
Page, Alexander Griffith,	*Coronado*,	Physiology
Page, Benjamin Edwin,	*Pasadena*,	English
Page, Clarence W.,	*Oakland*,	Physiology
Page, Ernest Stoddard,	*Oakland*,	Law
Palmer, John Williams,	*San Bernardino*,	Classical Phil.
Palstine, Oliver Price,	*Lower Lake*,	History *Sp.*
Park, Florence,	*San Jose*,	English *Sp.*
Parker, Garth,	*Salinas*,	Physiology
Parker, Ralph Eugene,	*Salem, Or.*,	Civil Eng. *Sp.*
Parkin, William Metcalf,	*Pittsburg, Pa.*,	Geology
Parsons, Edith Ferris,	*San Jose*,	English
Passmore, Irvin,	*Grampion, Pa.*,	Latin
Patterson, Frances Doremus,	*East Orange, N. J.*,	History
Patterson, Henry Samuel,	*East Orange, N. J.*,	Economics
Patterson, Letitia,	*East Orange, N. J.*,	English
Patterson, Mary Alma,	*San Jose*,	Education
Patterson, Rose,	*San Jose*,	Entomology
Patterson, William John,	*Pittsburg, Kans.*,	Electrical Eng.
Patton, Alice Ida,	*Gilroy*,	Mathematics
Patton, Edith Ellery,	*Gilroy*,	History *Sp.*
Pauly, Paul,	*Los Angeles*,	Geology
Payne, Elizabeth Makinson,	*Duluth, Minn.*,	Latin
Payne, Theodora,	*San Jose*,	History
Pearson, Eleanor Brooks,	*Palo Alto*,	Drawing
A. B., Univ. of Michigan, 1891.		
Pearson, Emma Virginia,	*Indianapolis, Ind.*,	English
A. B., Indiana Univ., 1897.		
Peck, Anna Dixon,	*San Francisco*,	History
A. B., Stanford, 1899.		
Peck, Isabel Linton,	*San Diego*,	German
Peckham, Elizabeth Anne,	*Watsonville*,	History
Peckham, Harry Augustus,	*Watsonville*,	Physiology
Penhallow, Henry Balch,	*San Francisco*,	Electrical Eng.
Perry, Frederic Jewell,	*San Francisco*,	Economics
Petree, Louis Edward,	*Kirksville, Mo.*,	Law
Phelps, Bertha Margaret,	*Los Angeles*,	Latin
Phelps, Jane Harriet,	*College Park*,	Drawing *Sp.*
Phelps, Mary Mabel,	*San Jose*,	English
Phillips, Maybelle Aveline,	*Ontario*,	Latin
Pickeman, Robert,	*Montrose, Scotland*,	Zoology *Sp.*
Pierson, Charles J.,	*Auburn, Nebr.*,	Zoology
A. B., Stanford, 1897.		

‡ In absentia.

Pillot, Mary Augusta,	*San Jose*,	History
Pitcher, Marie Louise,	*Tacoma, Wash.*,	English
	A. B., Stanford, 1897.	
Pitcher, Yrene,	*Dixon*,	Mathematics
Pitman, Homer Fletcher,	*Palo Alto*,	Physiology
Plate, Horatio Robinson,	*San Francisco*,	Civil Eng.
Plested, Edith Sophia,	*University Park, Colo.*,	Hyg. *Sp.*
Poirier, Jean Annette,	*Duluth, Minn.*,	Education *Sp.*
Pollock, Adelaide Lowry,	*Stockton*,	Physiology
Poorman, Samuel, Jr.,	*San Francisco*,	Law
Potter, Elbert King,	*Buena Park*,	Law
Potter, Eliot Gray,	*San Francisco*,	Chemistry
Powers, Nelson Charles,	*Syracuse, N. Y.*,	German
Prall, John Cornelius,	*Villisca, Ia.*,	English
	Ph. B., Univ. of Iowa, 1898.	
Pratt, Elizabeth Adelaide,	*San Francisco*,	English
Pratt, Orville Charles,	*Palo Alto*,	Economics
Price, William Wightman,	*Palo Alto*,	Zoology
	A. B., Stanford, 1897.	
Prichard, William Anthony,	*Portsmouth, O.*,	Geology
	A. B., Stanford, 1898.	
Pryne, Marion,	*Denver, Colo.*,	Latin
Quayle, Charles,	*Oakland*,	Law
Rademaker, Aïda Eleanor,	*San Francisco*,	Latin
Ramsay, Georgina,	*Palo Alto*,	History
Randall, William Gallup,	*Riverside*,	Law
Rawdon, Blanche Louise,	*Palo Alto*,	English
Rawdon, Mary Ellen,	*Palo Alto*,	English
Ray, Fred,	*Santa Barbara*,	Mechanical Eng.
Ray, James Clay,	*Yuba City*,	German
Raymond, Irving C.,	*Palo Alto*,	History
Rea, Ernest Lloyd,	*San Jose*,	Latin
Reed, John Defrees,	*Washington, D. C.*,	Geology
Reeves, Clyde William,	*Hillsboro, Or.*,	Geology *Sp.*
Reidy, Francis James,	*San Jose*,	Chemistry
Reppy, Roy Valentine,	*Ventura*,	Latin
Reynolds, Carolyn Elizabeth,	*Lake Geneva, Wis.*,	English
Reynolds, Marion,	*West Side*,	History
Rhodes, Ethel,	*San Jose*,	Physiology
Rice, Arthur Hyde,	*Lihue Kauai, H. I.*,	Chemistry
Rice, Edward Walter,	*Gilroy*,	History
Rice, Jesse Albert,	*Haywards*,	English *Sp.*
Richards, Charles Lenmore,	*Austin, Nev.*,	Law *Sp.*
Richards, Irmagarde,	*Spokane, Wash.*,	Greek

Richmond, Frank Adams,	*Redlands*,	Bionomics
Riddell, Charles Francis,	*Coronado*,	Economics
Riddell, Laura Grace,	*Coronado Beach*,	English
Rider, Ella Moore,	*Napa*,	Latin
Riggins, Clarence Nye,	*St. Helena*,	Law
Riley, Frank Branch,	*Portland, Or.*,	Economics
Ripley, Lila Irene,	*San Jose*,	English
Ritter, Rollin Von,	*Durango, Colo.*,	Geology
Rixon, Charlotte Amelia,	*Los Angeles*,	History
Robbins, J. Clarke,	*Palo Alto*,	Sociology *Sp.*
	B. D., Pacific Theol. Sem., 1890.	
Roberts, Charles Royden,	*Palo Alto*,	Education
Roberts, Gilchrist Porter,	*Stockton*,	Economics
Roberts, Milnor,	*Colorado Springs, Colo.*,	Geology
Roberts, Milnora de Beelen,	*Colorado Springs, Colo.*,	Ger. *Sp.*
Robinson, Earl Clayton,	*Aurora, Ill.*,	Zoology
Robinson, Sumner,	*Pittsburg, Pa.*,	English *Sp.*
Rodgers, Walter Clarence,	*San Francisco*,	Law
Rodolph, Frank Erwin,	*San Francisco*,	Physiology
Roesman, Thomas Jefferson,	*San Jose*,	Chemistry
†Rolfe, Frank,	*Los Angeles*,	Geology
	A. B., Stanford, 1898.	
Rogers, Frank Fowler,	*Allentown, N. J.*,	Latin
Rose, Christina Van Voorhis,	*Pomona*,	English *Sp.*
Rose, Hugh,	*Denver, Colo.*,	Geology
Rose, Stella,	*Pomona*,	Hygiene
Roseberry, Fred Thomas,	*Pope Valley*,	Electrical Eng. *Sp.*
Roseberry, Louis Heaton,	*Pope Valley*,	Law
Rosencrantz, Esther,	*San Francisco*,	Physiology
Ross, Harry Ware Thomas,	*Montecito*,	Civil Eng.
Ross, Hugh Leslie,	*Steubenville, O.*,	Law
Roth, Dorothea,	*Chicago, Ill.*,	English
Roth, Emma Katherine,	*Pasadena*,	German
Rothrock, Edward Hiram,	*Spokane, Wash.*,	Law
	A. B., Stanford, 1898.	
Rounds, Ida May,	*Alameda*,	History
Rowell, Edna Ellen,	*Easton*,	Physiology
Rowell, Gertrude Frances,	*Easton*,	Education
Rush, Richard Ira,	*Suisun*,	Electrical Eng.
Rusk, John Perley,	*Milwaukee, Or.*,	Economics
Russ, Arthur Charles,	*San Jose*,	Law
Russ, Edythe Josephine,	*Ferndale*,	English

† Work completed in absentia.

Ruth, Anna Frances,	*Pomona*,	Greek
Sakuma, Charles Gonjiro,	*Aichiken, Japan*,	Elec. Eng. *Sp.*
Sanderson, Fred Grant,	*Palo Alto*,	Latin
A. B., Beloit Coll., 1894.		
Schaefer, Joe Augustus,	*Denver, Colo.*,	Civil Eng.
Schallenberger, Frances Reese,	*San Jose*,	Latin
A. B., Stanford, 1896.		
Schanck, Imogene Anna,	*Elsinore*,	Latin
Schmutzler, Charles Frederick,	*San Francisco*,	German
A. B., Stanford, 1898.		
Schneider, Frederick Arthur,	*College Park*,	History
Schoenheit, Sophie Edith,	*San Jose*,	English
Schopbach, Mabel Katharine,	*Pasadena*,	Latin
Schott, Franklin Tuthill,	*Antioch*,	Physics
Schulz, Roy Edwin,	*Redlands*,	Greek
Schwartz, Charles Ernest,	*Carthage, Mo.*,	Economics
Schwarzkopf, Grace Hoon,	*Newark, N. J.*,	Physiology
Schwarzkopf, Rudolph Herrmann,	*Newark, N. J.*,	Physiology *Sp.*
Scott, Carroll DeWilton,	*San Diego*,	Law
Seger, Mary Isabel,	*Riverside*,	Physics
Sell, Charles Walter,	*Denver, Colo.*,	Civil Eng.
Senow, Hachiro,	*Sendai, Japan*,	Economics *Sp.*
Seward, George Lewis,	*San Francisco*,	Physiology
Shaw, Bertha Marie,	*San Francisco*,	Romanic Lang.
Shelley, Helen Hjerleid,	*Berryessa*,	History
Shelley, Martha,	*Loudonville, O.*,	English
Sheppard, Louise Patteson,	*Penn Yan, N. Y.*,	History
A. B., Vassar Coll., 1896.		
Sherer, Edward Turner,	*Los Angeles*,	Law *Sp.*
Shibley, Ernest Harvey,	*Miller*,	Mathematics
†Shoemaker, Clara Maude,	*Los Gatos*,	French
A. B., Stanford, 1898.		
Shoemaker, Harlan,	*Sioux City, Ia.*,	Physiology
Short, Frances Elizabeth,	*Wadsworth, Nev.*,	Education
Sill, Alfred Bailey,	*Blackfoot, Idaho*,	Law
Simpson, Mary Sheal,	*Grand Rapids, Mich.*,	English
Sinnott, Sue Stone,	*San Jose*,	Physiology
Skillings, Mary Ellen Covington,	*Alameda*,	Bionomics
Skinner, Annabell,	*Berkeley*,	Hygiene *Sp.*
Sladen, Harry Stinson.	*Portland, Or.*,	Electrical Eng.
A. B., Stanford, 1898.		
Smith, Charles Chrisfield,	*Manhattan, Kans.*,	English
B. S., Kansas State Agr. Coll. 1894.		

† Work completed in absentia.

Smith, Everett Wallace,	*Boston, Mass.*,	English
Smith, Herman Charles,	*Portland, Or.*,	Mechanical Eng.
Smith, Julian Gilbert,	*Mayfield*,	Mechanical Eng.
†Smith, L. Agnes,	*San Diego*,	English
A. B., Stanford, 1898.		
Smith, Martha Constance,	*Palo Alto*,	English
Ph. B., Northwestern Univ., 1891.		
Smith, Nellie May,	*Palo Alto*,	Physics
Smith, Norwood Browning,	*San Francisco*,	Mathematics
Smith, Paul Lavendee,	*Paso Robles*,	Geology
Smith, Paschal Roberts, Jr.,	*New York, N. Y.*,	Law
Smith, Rea Everett,	*Los Angeles*,	Physiology
Smith, William Arthur,	*Los Angeles*,	Electrical Eng. *Sp.*
Snell, Joel Andrew,	*Tehama*,	Latin
Snodgrass, Robert Evans,	*Ontario*,	Zoology
Snyder, John O.,	*Palo Alto*,	Zoology
A. B., Stanford, 1897; A. M., 1899.		
Sobey, Christabel Rose,	*San Francisco*,	English
Sobey, Gifford Lyne,	*San Francisco*,	Physiology
Spalsbury, Sara Helen,	*Santa Cruz*,	German *Sp.*
Spaulding, Milo Herrick,	*Kalispel, Mont.*,	Zoology
Spencer, Edward Alanson,	*Oakland*,	Economics
Spooner, D. Brainerd,	*Boston, Mass.*,	Classical Phil.
Sprague, Helen M.,	*Gilroy*,	History
A. B., Stanford, 1899.		
Springer, John Elbert,	*Washington, Ia.*,	Economics
Stadtmüller, Daniel Ward,	*San Francisco*,	Economics
Stager, Henry Walter,	*Montclair, N. J.*,	Mathematics
Staley, Arthur,	*Placentia*,	English
Staley, Joseph Clarence,	*Urbana, Ill.*,	Latin
A. B., Univ. of Illinois, 1898.		
Stanford, Mildred,	*Olympia, Wash.*,	English
Starbuck, Flora Edna,	*Bridgeport, Ind.*,	Latin
Stark, Mollie Pearl,	*San Jose*,	Romanic Lang.
Stearns, Herman De Clercq,	*Palo Alto*,	Physics
A. B., Stanford, 1892; A. M., 1893.		
Steel, Harry Bismark,	*Hilgard, Or.*,	Geology
Steele, Edgar Willis,	*Edna*,	Geology
Stenmo, Albert,	*Hatton, N. D.*,	History
A. B., Univ. of North Dakota, 1898.		
Stephens, Arthur Harlan,	*Butte, Mont.*,	Electrical Eng.
Stephens, Charles Thomas,	*Denver, Colo.*,	Chemistry
Stephens, Eleanor Harlow	*San Jose*,	English

† Work completed in absentia.

Stephens, Leroy Hamilton,	*College Park*,	Classical Phil.
Sterrett, Roger John,	*San Jose*,	Drawing
Stevens, Frank Asbury,	*Monticello, Ill.*,	Economics
Stevens, Maude Frances,	*Oroville*,	History
Stevens, Nettie Maria,	*Chelmsford, Mass.*,	Physiology
Stevenson, Emelie,	*San Francisco*,	English
Stevenson, Howard Griffith, Jr.,	*Fair Oaks*,	Chemistry
Stewart, Arthur Bonbright,	*Beaver Falls, Pa.*,	Law
Stewart, Gwendolyn,	*Santa Cruz*,	Economics
Stocking Minnie,	*San Luis Obispo*,	Education
Stockton, Alice Pearl,	*Hornitos*,	English
Stone, Flora May,	*Alamo*,	English *Sp.*
Stone, Wald James,	*San Francisco*,	Chemistry
Storey, Thomas Andrew,	*Palo Alto*,	Physiology
	A. B., Stanford, 1896.	
Story, Charles Lewis,	*Dixon*,	English
	A. B., Pacific Meth. Coll., 1897; A. B., Stanford, 1898.	
Stowe, Frank Rabineau,	*Menlo Park*,	Electrical Eng.
Strange, Bessie,	*Palo Alto*,	Chemistry *Sp.*
Strange, Shelby Phipps,	*Palo Alto*,	Chemistry
Strohn, Clarence Burton,	*Los Angeles*,	History
Strong, Archibald McClure,	*Pasadena*,	Chemistry
Strout, Ernest Allen,	*Sebastopol*,	Geology
Strunsky, Anna,	*San Francisco*,	English *Sp.*
Styles, Henry Eckford,	*San Francisco*,	Law
Susman, Leo Henry,	*San Francisco*,	Law
Sussman, Leo I.,	*San Francisco*,	Civil Eng.
Suzzallo, Anthony Henry,	*San Jose*,	Education
Swain, Robert Eckles,	*Palo Alto*,	Chemistry
	A. B., Stanford, 1899.	
Swanson, Tillie Lucretia,	*Madison, Kans.*,	History
Swett, Helen,	*Martinez*,	Zoology
Swett, John French,	*Martinez*,	Law
Swindells, Charles Jay,	*Tacoma, Wash.*,	Law
Sykes, Edmund Taylor,	*Minneapolis, Minn.*,	Elec. Eng. *Sp.*
Symonds, Nathaniel Gardner,	*Los Gatos*,	Electrical Eng.
Taber, Clara Mabel,	*Elko, Nev.*,	Mathematics
Taber, Cora Emma,	*Elko, Nev.*,	History
Takagi, James June,	*Tokyo, Japan*,	Electrical Eng.
Talbot, Earle,	*San Francisco*,	Civil Eng.
Taylor, Florence,	*Steubenville, O.*,	Latin
Taylor, Henry Huntley,	*San Francisco*,	History
Taylor, Marion Dickie,	*Livermore*,	English

Taylor, Winifred Hawkins,	*Steubenville, O.*,	English
A. B., Stanford, 1898.		
Temple, Grace Douglas,	*Los Gatos*,	Latin
A. B., Stanford, 1898.		
Templeton, Joseph Crittenden,	*Helena, Mont.*,	English
Tevis, Julia A.,	*Louisville, Ky.*,	Latin
Theobold, Harry Couch,	*Palo Alto*,	English
Thies, Arno Grote,	*Denver, Colo.*,	Geology
Thoits, Edward Clair,	*Palo Alto*,	History
A. B., Stanford, 1898.		
†Thomas, Benjamin,	*Palo Alto*,	Physiology
A. B. Stanford, 1897; A. M., 1898.		
Thomas, Clarence Lot,	*Storm Lake, Ia.*,	History
Thomas, Edward Lewis,	*Santa Rosa*,	Law *Sp.*
Thomas, John Shepard,	*San Francisco*,	Geology
Thomas, Monroe Hardon,	*Palo Alto*,	Law
Thompson, Frank Ernest,	*Palo Alto*,	Education *Sp.*
†Thompson, Mary,	*Milwaukee, Wis.*,	English
A. B., Stanford, 1898.		
Thoms, Clifford Corlton,	*Rialto*,	Geology
Thomson, Robert William,	*San Francisco*,	Electrical Eng.
Throop, Lillian Stanton,	*Pasadena*,	English *Sp.*
Titus, Charles Mantor,	*Sebastopol*,	Mathematics
Toll, Asahel Clark,	*Baldwinsville, N. Y.*,	Civil Eng.
Toll, Maria Louise,	*Baldwinsville, N. Y.*,	History
Toombs, Bertha C.,	*Modesto*,	Romanic Lang.
Towne, Bertram Chase,	*Los Angeles*,	Economics *Sp.*
Townsend, Arthur Chisholm,	*San Jose*,	Physiology
Townsend, Clarence Robert,	*Durango, Colo.*,	Mech. Eng.
Townsend, Mabel Anna,	*Santa Ana*,	Hygiene
A. B., Stanford, 1898.		
Townsend, Percy Seymour,	*Palo Alto*,	Chemistry
Townsend, Vera,	*Palo Alto*,	Latin
Trader, Harrold,	*Palo Alto*,	Latin
Truslow, Howard,	*San Francisco*,	Electrical Eng.
Tsukamoto, Chuzaburo,	*Kyoto, Japan*,	Electrical Eng.
†Tubbs, Julia Benson,	*Ontario*,	English
A. B., Stanford, 1898.		
Tucker, Adelaide M.,	*Palo Alto*,	Physiology
Tucker, Mary Frances,	*Palo Alto*,	History
Tucker, Hannah Adella,	*Palo Alto*,	Latin
A. B., Stanford, 1895.		
Turcot, Josephine May,	*Santa Cruz*,	Romanic Lang.

† Work completed in absentia.

Turner, Bessie Kathleen,	*Paso Robles*,	Latin
Tweed, Howard Preston,	*Denver, Colo.*,	Geology
Twieg, William Charles,	*Cleveland, O.*,	Chemistry
Tynan, Maud Loretta,	*San Jose*,	History
Uihlein, Joseph Edgar,	*Milwaukee, Wis.*,	German *Sp.*
Uri, Sol,	*San Francisco*,	Chemistry
Utt, Anita Lee,	*Pala*,	Romanic Lang.
Utt, Lewis John,	*Pala*,	Law
Van Kaathoven, Jean Jacques Abram,	*San Jose*,	Physiology
Van Norden, Ottomar Hoghland,	*Sacramento*,	History
Vaughn, Anna Bonfoy,	*Mayfield*,	German
B. L., Univ. of Minnesota, 1884.		
Veuve, Erle Le Roy,	*Port Townsend, Wash.*,	Civil Eng.
Viall, Benjamin Thomas,	*David City, Nebr.*,	Electrical Eng.
Victor, Royall Charles,	*San Bernardino*,	History
Vinyard, Helen Plato,	*Los Angeles*,	Physiology
Wadsworth, Philip Arthur,	*Oakland*,	Geology
Wagner, Juliet Anttoinette,	*San Francisco*,	Latin
Waite, Charles Edgar,	*Riverside*,	Economics
Waite, Marion Pishon,	*Riverside*,	Electrical Eng.
Walker, Delia,	*Redwood City*,	Drawing *Sp.*
Wallace, Anna Theresa,	*Chicago, Ill.*,	Latin
Walter, Herbert David,	*San Francisco*,	English
Walter, John Isidor,	*San Francisco*	Greek
Wardall, Clarence Marion,	*Monrovia*,	Law
Warren, Bertha,	*Santa Clara*,	Drawing *Sp.*
Warren, Eugene,	*Silver City, N. M.*,	Law
Waters, Lucy Helene,	*Junction City, Kans.*,	English
B. S., Kansas State Agr. Coll., 1894.		
*Wathey, Charles Kane,	*Butte, Mont.*,	Electrical Eng.
Watson, Florence Elizabeth,	*San Diego*,	Education
A. B., Stanford, 1899.		
Watson, Frank Whalley,	*Portland, Or.*,	Geology
†Webb, Louis K.,	*Los Gatos*,	Education
B. S., Univ. of Mich., 1878; A. M., Stanford, 1898.		
Webber, Harrison Ogilvie,	*High Grove*,	Electrical Eng. *Sp.*
Webster, Hazel Hope,	*Long Beach*,	English
Wehner, Ida,	*Evergreen*,	German
A. B., Stanford, 1899.		
Weir, Mabel McQueen,	*Boone, Ia.*,	Classical Phil.
Welges, Eleanor Kathrine,	*Woodland*,	Greek
Wells, George Summers,	*San Jose*,	Chemistry

*Died October 14, 1898.

†Work completed in absentia.

West, Arthur Benjamin,	*Denver, Colo.*,	Law
West, Horatio Earle,	*Pasadena*,	Mechanical Eng.
Westall, Samuel Francis,	*Palo Alto*,	Civil Eng. *Sp.*
Wheaton, Anna Elma,	*Wheatville*,	Latin
Wheeler, Eva Marian,	*Monrovia*,	English
Wheeler, Frank R.,	*Tacoma, Wash.*,	Mech. Eng. *Sp.*
Whitaker, Albert Conser,	*Los Gatos*,	Economics
White, Emile,	*San Francisco*,	Law
White, Hilton Richmond,	*Tacoma, Wash.*,	Law
White, Joseph Ephriam,	*Santa Barbara*,	Geology
Whiting, Clement Adelbert,	*Salt Lake City, Utah*,	Zoology
M. S., Univ. of Iowa, 1890.		
Whiting, Lillian Mackenzie,	*Salt Lake City, Utah*,	Sociology
Whitlock, Henry Gray,	*Los Angeles*,	Law
Whitmire, William Joseph,	*San Jose*,	Law *Sp.*
Whitmore, Charles Abbott,	*San Bernardino*,	English
Whitmore, Herbert Marcellus,	*Paso Robles*,	Economics
Whittier, Florence Bertha,	*Riverside*,	Greek
Whittier, Wilmot Edgar,	*Riverside*,	Mathematics
Whittle, Charles de Quetteville,	*Roslyn, Wash.*,	Zoology
Wickersham, Lloyd Blauvelt,	*Portland, Or.*,	Electrical Eng.
Wiel, Harry Isaac,	*San Francisco*,	Physiology
Wier, Jennie Elizabeth,	*Newark*,	History
Wight, William Franklin,	*Chicora, Mich.*,	Botany
B. S., Michigan Agr., Coll., 1894.		
Wigle, Keith Elihue,	*Palo Alto*,	Economics
Wigle, Ruby Beatrice,	*Palo Alto*,	German
Wilbur, Celia,	*Riverside*,	Latin
Williams, Edwin Henry,	*San Jose*,	Economics
Williams, Ernest Stanwood,	*Los Angeles*,	Economics
Williams, George Morgan,	*Palo Alto*,	English
Williams, Mary Ida,	*Palo Alto*,	English
A. B., Stanford, 1899.		
Williams, Mark Wayne,	*Des Moines, Ia.*,	English
A. B., Univ. of Iowa, 1898.		
Williston, Alice Belle,	*San Jose*,	Latin
Wills, Frank Durack,	*Antioch*,	Law
Wilson, Ernest,	*Palo Alto*,	History
Wilson, Evangeline,	*Elmira*,	German
Wilson, Jessica Anna,	*Santa Monica*,	German
Wilson, Joseph Elmer,	*East Oakland*,	English *Sp.*
Wilson, Lida,	*Vallejo*,	History
Wilson, Llewellyn Burt,	*Palo Alto*,	Law

Wilson, Louise Suzanne,	*San Francisco,*	English
Ph. B., Univ. of Calif., 1897.		
Wilson, Philip Louis,	*Los Angeles,*	Law *Sp.*
Wilson, Samuel Mountford,	*San Francisco,*	Law
Wiltz, Bertha Amelia,	*San Jose,*	Physiology
Winans, Claude,	*San Jose,*	Law
Winn, Ann Bartlett,	*San Diego,*	German
Winn, Lera,	*San Diego,*	Latin
†Winslow, Martha Minerva,	*Aurora, Ill.,*	Education
A. B., Oberlin Coll., 1879; A. M., Stanford, 1898.		
Wirt, Charlotte,	*Santa Rosa,*	German
Wolfenbarger, Frances B.,	*San Jose,*	English
Wolters, Sophia Juliane,	*San Francisco,*	German
Wood, Elsie Maude,	*Palo Alto,*	History
Wood, William Almon,	*Pasadena,*	Physiology
Woodin, Irving Oakley,	*Independence,*	Physiology *Sp.*
Woodruff, George Hobart,	*Watertown, Conn.,*	History
Wootten, Joseph Bivens,	*Linden,*	Education *Sp.*
Wright, Annie Louise,	*Mayfield,*	Mathematics
A. B., Stanford, 1896; A. M., 1897.		
Wright, Charles Falconer,	*San Jose,*	Physiology
Wright, Charles Frederick,	*San Luis Obispo,*	History
A. B., Stanford, 1896; A. M., 1897.		
Wright, Fred Hard,	*Palo Alto,*	Electrical Eng.
Wright, William Quimby,	*San Jose,*	Geology
Yoch, Josephine Rose,	*Santa Ana,*	Classical Phil.
Yoshioka, Swazo F.,	*San Francisco,*	Electrical Eng.
Yost, George Herbert,	*Arroyo Grande,*	English
Youens, Alfred Vincent,	*Galveston, Tex.,*	Elec. Eng. *Sp.*
Young, Charles Edgar,	*Kelseyville,*	Geology *Sp.*
Young, John Quigley,	*Fort Jones,*	Physiology
Young, Willard Tuthill,	*Kelseyville,*	Physiology
Younger, Herbert Lane,	*Palo Alto,*	Physiology
Zahn, Edwin Leonard,	*San Jose,*	German
A. B., Ohio Wesleyan Univ., 1895; A. M., 1897.		
Zeimer, Irving Scott,	*Oakland,*	Physiology
Zellen, Michael J.,	*Kieff, Russia,*	Economics *Sp.*
Zschokke, Arthur Jacob,	*Palo Alto,*	Mechanical Eng.
Zucker, Emmabelle Hudson,	*Oakland,*	English

† Work completed in absentia.

SUMMARIES.

OFFICERS.

Trustees		17
Teachers—		
Professors	43	
Associate Professors	8	
Assistant Professors	19	
Instructors	16	
Assistants	18	
Lecturers	3	107
Other Officers		24

STUDENTS.

In Graduate Standing	94
Undergraduates	909
Special Students	150
Total (men, 690; women, 463)	1153

Major Subjects.	Graduate.	Undergraduate.	Special.	Total.	*No. of Students taking work.	*Total registration in all classes.
Greek	2	7	—	9	124	143
Latin	11	65	1	77	134	232
Classical Philology	1	7	—	8	—	—
German	7	39	9	55	436	558
Romanic Languages	8	25	3	36	351	428
English	14	124	27	165	441	672
Psychology	2	1	1	4	69	88
Ethics	—	1	—	1	—	—
Bionomics	—	9	—	9	206	223
Education	8	35	13	56	295	361
History	10	108	8	126	310	575
Economics	2	61	10	73	154	237
Law	5	105	14	124	190	269
Mathematics	1	31	4	36	213	303
Physics	2	7	—	9	72	81
Chemistry	3	41	6	50	170	216
Botany	2	12	1	15	43	56
Entomology	1	3	1	5	14	14
Hygiene	1	4	5	10	488	597
Physiology	2	79	11	92	125	162
Zoology	6	25	2	33	88	108
Geology	2	51	8	61	182	213
Drawing	2	2	8	12	59	67
Civil Engineering	—	24	4	28	130	185
Mechanical Eng.	—	10	5	15	97	150
Electrical Eng.	2	33	9	44	16	37

*First semester.

By Residence.

California	805	Wisconsin	5
Oregon	52	Michigan	4
Colorado	30	Nevada	4
Washington	28	Kentucky	3
Illinois	19	Texas	3
Ohio	19	New Mexico	2
Pennsylvania	18	North Dakota	2
Massachusetts	14	Connecticut	1
Montana	13	Indian Territory	1
New York	13	Louisiana	1
Indiana	12	West Virginia	1
Iowa	11	Wyoming	1
Minnesota	10	Japan	12
Utah	10	Canada	3
New Jersey	9	Brazil	2
District of Columbia	8	Hawaii	2
Missouri	8	China	1
Kansas	7	Mexico	1
Idaho	6	Russia	1
Arizona	5	Scotland	1
Nebraska	5		

California by Counties.

Alameda	36	Sacramento	9
Butte	6	San Bernardino	21
Contra Costa	7	San Benito	7
Colusa	2	San Diego	39
Fresno	7	San Francisco	99
Glenn	1	San Joaquin	11
Humboldt	8	San Luis Obispo	16
Inyo	1	San Mateo	22
Kern	4	Santa Barbara	9
Kings	1	Santa Clara	260
Lake	5	Santa Cruz	12
Los Angeles	83	Shasta	2
Madera	2	Solano	16
Mariposa	1	Sonoma	16
Marin	3	Siskiyou	2
Mendocino	3	Stanislaus	10
Merced	4	Sutter	5
Monterey	10	Tehama	1
Napa	13	Tulare	8
Orange	16	Ventura	6
Riverside	16	Yolo	5

COMPARATIVE STATISTICS.

	1891–2	1892–3	1893–4	1894–5	1895–6	1896–7	1897–8	1898–9
Old students	...	380	498	671	702	695	713	763
New students	559	384	477	429	367	396	511	390
Totals	559	764	975	1100	1069	1091	1224	1153
Men	417	537	678	728	691	691	766	690
Women	142	227	297	372	378	400	458	463
Percent. of women	25.4	29.7	30.4	33.8	35.3	36.6	37.4	40.1
From California	365	468	576	680	698	729	836	805
Other States	194	295	399	420	371	362	388	348
Percent. other States	34.7	38.7	41.0	38.2	34.7	33.2	31.7	30.1
Graduate standing	37	63	84	79	102	97	106	94
Undergraduates	376	500	650	815	777	808	897	909
Special students	146	198	241	206	190	186	221	150
Totals	559	764	975	1100	1069	1091	1224	1153

Average Age at Matriculation.

*Graduates	...	...	27.8	27.8	31.9	28.8	28.5	29.7
Advanced standing	...	...	...	23.2	25.2	23.4	24.4	23.1
Freshmen	...	...	20.7	20.4	20.7	20.7	20.7	20.6
Specials	...	...	24.5	23.2	24.1	23.8	24.1	27.6

Age of Freshmen at Matriculation.

Under 17	...	...	...	11	9	12	13	4
17 to 18	...	...	...	36	40	24	35	34
18 to 19	...	...	...	46	42	43	65	51
19 to 20	...	...	...	34	45	40	50	56
Over 20	...	...	...	104	75	94	127	109
Totals				231	211	213	290	254

Age of Specials at Matriculation.

Under 21	...	...	...	51	36	45	37	7
21 to 22	...	...	...	18	19	13	31	10
22 to 23	...	...	...	18	9	16	15	9
23 to 24	...	...	...	11	10	6	14	10
24 to 25	...	...	...	7	4	3	7	2
Over 25	...	...	...	28	31	26	48	36
Totals				133	109	109	152	74

*Counting only graduates from other universities.

Degrees Conferred.

MAY 25, 1898.

BACHELORS OF ARTS.

In Greek :

Ivan Deach,
Logan L. Emerson,
Albert Ludwig Hall,
Oliver S. Picher,
Helen Knight Smith.

In Latin :

Olive Mabel Dunbar,
Agnes Eva Ferguson,
Alice Gordon Plested,
Edith Virginia Porter,
Katharine Marvin Shepler,
Charlotte Sumner Smythe,
Grace Douglas Temple,
Helen Webster Williams.

In Germanic Languages :

Bessie Rachel Coffin,
Edith Victoria Ducker,
Lena Mary Ducker,
E. Louese Gerichs,
Charles Edmund Haas,
Parnie Olive Hamilton,
Emma Elizabeth Meyer,
Mary Virginia Patterson,
Charles Frederick Schmutzler,
Mary Howard Strowbridge.

In Romanic Languages :

Carlena Crowell,
Anna Laurie Derr,
Charles Hunt Greenleaf,
Gertrude Alice Martin,
Elinor Alma Smith.

In English :

Philip Fanning Abbott,
Lena Josephine Brown,
Bonnie May Burckhalter,
Blanche Beatrice Byxbee,
Daniel Coolidge,
Orpha Josephine Flinn,
Lillian Pearle Green,
Grace A. Johnson,
Katherine Robinson Norton,
Lida Putnam,
Oda Redman,
Charles Lewis Story,
Roys Nelson Strohn,
Winifred Hawkins Taylor,
Mary E. Walter,
George Henry Burwell Wright.

In Bionomics :

Mary Grafton Campbell,
Frederic Langston Williams.

In Education :

Newell Harris Bullock,
Minnie Coulter,
Percy Erwin Davidson,
Henry Clay Faber,
David William Lindsay,
Louise Maitland,
Margaret E. Schallenberger.

In History :

Marion Adams,
Steuart Walker Cotton,
Nellie Maria Dibble,
Charles Marron Fickert,
Perl Vincent Gifford,
Harlean James,
William Webb Kemp,
Charles McFerson Mannon,
Anne Earle Peck,
Sarah Coates Scofield,
Edward Clair Thoits,
Ralph Hewitt Wardall.

In Economics and Sociology :

Frank K. Abé,
Wilber Charles McNeil,
Stephen Ivan Miller, Jr.,
Edward Lincoln Spinks,
Thomas More Storke,
John Canute Swenson,
George Burrows Taylor,
Paul Elliott Walker.

In Law :

Louis Samuel Beedy,
George Henry Busch,
Samuel Watson Charles,
Will Henry Crow,
Charles Gordon Decker,
Edward Lewis Farmer,
Malcolm McCullough Hays,
William Oscar Johnson,
Francis Valentine Keesling,
James Edmund Murphy,
John Milton Oskison,
Edward Hiram Rothrock.

In Mathematics :

Homer Munro Derr,
John George Gwartney,
Harriet Sophia Hyde,
John Franklin West,
Amina Wilson McNaughton,
Jacob Meyer Preeman.

In Physics:

James McIntosh.

In Chemistry :

Dorsey Alfred Lyon,
James Joseph Rippetoe,
Charles Hubert Shepard,
Harry Ives Shoemaker,
Walter Cox Taber,
Mabel Anna Townsend.

In Botany :

Winifred Mabel Paine.

In Entomology:

Mattie Johnson, Harriet Mason Morton.

In Physiology and Histology:

Mabel Rankin Charles, Alfred Karsted,
Winifred Sophie Fry, Robert Hansen Madsen,
Edith Sybil Hammond, Marylyn Main,
Harold Phillips Hill, Allan Earle Peck,
Carl Herman Horst, Edward Cecil Sewall,
Otis Buckminster Wight.

In Zoology:

Susie May Dickson, Arthur White Greeley.

In Geology:

Lou Henry, Frank Rice Short,
Chester A. Thomas.

In Civil Engineering:

Edward Emery Carpenter, Louis Bernard Spencer,
Hugo Klauber, Charles Herbert Sweetser,
Van Norman McGee, Ole Tobiason,
Frederick Scott Noble, Able Hyde Toll,
Don Everett Tripp.

In Mechanical Engineering:

Nathaniel Allen Carle, Harry Austin Deuel,
Frank Bradley Van Fossen.

In Electrical Engineering:

William Robert Bankhead, Arba Vanderburg Joslin,
Frank George Baum, Eugene Young Sayer,
Edward Eugene Grow, Harry Stinson Sladen,
William Francis Jordon, Howard Saunders Warren.

MASTERS OF ARTS.

In Latin:

Nettie Eliza Hindry, A. B.

In English:

Edith Tully Beck, Ph. B. (DePauw).

In History:

Blanche Josephine Anderson, A. B. (Oberlin).
Maud Louisa Grieb, A. B.

In Mathematics:

Walter Alfred Stafford, A. B.

ENGINEER.

In Electrical Engineering:

Harry Joel Bean, A. B.

SEPTEMBER 12, 1898.

BACHELORS OF ARTS.

In Germanic Languages:

Cornelia Pierson Ford.

In Romanic Languages:

Clara Maude Shoemaker.

In English:

Ida Amanda Beermaker,
Zaidee Mabel Brown,
Marie Antoinette Butler,
L. Agnes Smith,
Mary Thompson,
Julia Benson Tubbs.

In Ethics:

Richard Crittenden McGregor.

In History:

George Henry Francis.

In Physiology and Histology:

Paul Allen Adams.

In Geology:

William Anthony Prichard,
Frank Rolfe.

MASTERS OF ARTS.

In Greek :

Maude Flint, A. B.

In Education :

Louis K. Webb, B. S., Martha Minerva Winslow, A.B.

In Physiology and Histology :

Benjamin Thomas, A. B.

JANUARY 16, 1899.

BACHELORS OF ARTS.

In Latin :

Katherine Anthy Mosher.

In Germanic Languages :

Hedwig Bertha Buss, Ida Wehner.

In Romanic Languages :

Helen Viola Mount.

In English :

Eleanor Virginia Hearne, Mary Lily Meyrick,
Mary Ida Williams.

In Psychology :

Mary Wilson George.

In Education :

Florence Elizabeth Watson.

In History :

Brodie Gilman Higley, Anna Dixon Peck,
Fred Sisco Howard, Helen M. Sprague.

In Law :

George William Bush, James Leroy Haffey,
Rees Oliver Davies, Alexander Samuel Jeffs.

In Mathematics :
Oliver Stanton Hoover.

In Chemistry :
Everard Charles Frost, Benjamin Taswell Gillette,
Robert Eckles Swain.

In Entomology :
Florence Eugenia Dorsey.

In Botany :
Le Roy Abrams, William Austin Cannon.

In Physiology and Histology :
Jeremiah Beverley Lillard.

In Zoology :
James Francis Abbott.

In Civil Engineering:
William Nay Bell.

MASTER OF ARTS.

In Zoology :
John O. Snyder, A. B.

Alumni Association.

ORGANIZED JUNE 15, 1892.

CONSTITUTION.

In order to promote the interests of the University, to secure unity among its graduates, and to foster an attachment to our *Alma Mater*, we do hereby constitute ourselves an association to be known as the Alumni Association of the Leland Stanford Junior University.

1. All persons who have received a degree from the Leland Stanford Junior University are members of this Association.

2. All members of the Faculty are honorary members of this Association.

3. The officers of this Association shall be a President; one Vice-President from each successive group of five classes, provided that when the last group shall number three classes it shall thereafter be entitled to a Vice-President; a Secretary; and a Treasurer.

4. There shall be an Executive Committee, to consist of the following persons: the Secretary and Treasurer of the Association, and three other persons chosen by the Association, one of whom shall be designated as Chairman of the Committee.

5. It shall be the duty of the Executive Committee to arrange the programmes for Alumni Day and other public occasions; to regulate the finances of the Association; to perform such other duties as may be imposed upon them; and to attend to all business of the Association not otherwise provided for.

6. The President shall be *ex-officio* a member of all committees. At each annual business meeting he shall appoint a committee of two persons to audit the Treasurer's accounts.

7. The officers and the Executive Committee shall be elected by ballot at the annual business meeting to be held on Alumni Day, a majority of all votes cast being necessary for election.

8. Any proposition to alter or amend these Articles of Association must be made at a regular meeting, and have the assent of two-thirds of the members present.

OFFICERS FOR 1898–99.

President—Clarke Butler Whittier, '93.
Vice-President—Benjamin Franklin Bledsoe, '96.
Secretary—Henrietta Louise Stadtmüller, '95.

Treasurer—Charles Ellwood Cox, A. M., '93.
Executive Committee—Jefferson Elmore, '95, Chairman; Charles Ellwood Cox, A. M., '93; Harriet Cory, '95; Abraham Lewis, '95; Henrietta Louise Stadtmüller, '95.

SAN FRANCISCO ASSOCIATION.

President—John Francis Sheehan, '95.
Vice-President—Abraham Lewis, '95.
Secretary—William Elder Stuart, '95.
Treasurer—Ira Shell Lillick, '97.

SAN JOSE ASSOCIATION.

President—Arthur Henry Washburn, '93.
Vice-President—Alfred Barstow, '95.
Secretary—Harriet Cory, '95.
Treasurer—Charles Henry Hogg, '93.

[Other associations are requested to report list of officers.]

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